

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP M. LLS JONES, M. D., Secretary and Editor

PUBLICATION COMMITTEE.

George H. Evans, M. D.

A. J. Lartigau, M. D.

Wallace I. Terry, M. D.

F. M. Pottenger, M. D.

ADDRESS ALL COMMUNICATIONS

Secretary State Society,
State Journal,
Official Register,

Butler Building,
San Francisco.

Telephone Douglas 2537

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Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. VIII

MARCH, 1910.

No. 3

EDITORIAL NOTES.

The Committee on Arrangements announces that the meetings of the State Society at Sacramento, April 19th, 20th and 21st, 1910, **ANNUAL MEETING.** will be held in the Elks' Building, which is located conveniently near the Hotel Sacramento. The Hotel Sacramento is a new, reinforced concrete building, in every way first-class, and has made a satisfactory rate on the American plan for our members who attend the meeting. The details in regard to the entertainment of members and their families have not yet been concluded, but it is understood that the medical profession of Sacramento are planning to make the visit of the Society to that city a memorable one, as well for the entertainment provided as for the scientific work done. Make your plans right now to attend the meeting and do not allow anything to interfere with those plans when they are made. You can not afford *not* to attend these meetings; it is worth a month's income just to meet so many fellow practitioners and to learn that they are such nice people to know, and not just deadly rivals. Get out of the rut; go to the annual meeting; meet several hundred of your fellow physicians; learn something new; teach something that you have found out and that others ought to know. Go to the meeting even if at some sacrifice.

In the State Society, in many, if not all County Societies, in every sort and form of organization of men, you will hear the same sort of talk; that things are run by a "ring," a "clique," a "machine." And it is perfectly true; all organizations of men are always managed and conducted—or "run"—by a few men who will give their time and their energy to the necessary work; probably very few of those who do the work would not be glad to be quit of it, if someone else would step forward and relieve them. In the main, all such work is done for the good of the society; when a man takes up the burden for purely selfish purposes, it is soon evident; results are not obtained; the society does not improve; for the work is not unselfish. On the other hand, and in the vast majority of cases, the work is unselfishly done and not for any personal reason; therefore, the society benefits; results are obtained; progress, and not retrogression, is assured. The man who undertakes to "run" things for himself is eliminated every time, just as sure as fate. You see that everywhere; in city politics, where the boss sooner or later is overthrown or convicted. Human nature is complex and all people, thank the Lord, do not like the same things. Some men like and are fitted for executive work; they are willing to give their time to it; is that any reason why the men who do not like it and are not fitted for it should say harsh things about them? All this talk about a "ring" is both true and absurd; it is true that a few men will always do most of the work; it is utterly absurd to deduce from that fact that they are doing so for purely selfish motives or for anything less honorable than the good of the society. A few men—the Council—have "run" the State Society for some eight years, with but very few changes in the personnel of that body. And what is the result? They have increased the Society until, at the end of December, 1909, there were 1954 names on the roll; the largest membership to date. They have gone out looking for ways in which to be useful to the members; they have given hours to that work; they have recently formulated a plan for medical defense which is working satisfactorily. Do you like things to be "run" that way, or not? A few men form the House of Delegates; can you recall an instance when that body has not worked for the good of the Society?

When the American Medical Association undertook the publication of a medical directory that should be accurate—and not include within it the name of any old quack who would subscribe for the book—it did a great good for the

medical profession of this country. Not the least important, and by far the most valuable part of the work of getting out this directory, was the compilation of reliable data in the A. M. A. office. From the data so gathered it is now possible to check up and prove the statements as to graduation,

license, etc., which any individual physician may make. The result is a higher degree of accuracy than has ever been secured in a similar work. It should receive the hearty support of every physician in order that the work may be improved from year to year, become more and more accurate in the matter of addresses, and thus become more useful to everyone. It is a subject for congratulation that the medical profession has come into its own in this one particular, and that it is no longer at the mercy of the whim or the avarice of a commercial publisher. Give the American Medical Directory your hearty support.

The many friends of Dr. Rupert Blue will be glad to know that he has been made a Fellow of the Royal Society of Tropical Medicine of London in recognition of his remarkable work in fighting plague in San Francisco. This is one of the highest tributes which could be paid him and its bestowal reflects great credit not only on Dr. Rupert Blue, but on the service which he represents as well. In the past year there has not been a case of rat plague in San Francisco but the infection among ground squirrels in Contra Costa, Alameda, Santa Clara, San Benito and Santa Cruz counties has assumed such vast proportions that its eradication will probably be a labor of years. Thus far about 60,000 squirrels have been examined at the Federal Laboratory and over 300 have been found to be positive for plague. Just how far-reaching this epizootic will prove to be is difficult to say. Dr. George W. McCoy, who is in charge of suppressive measures during Dr. Blue's absence abroad, and Dr. W. C. Rucker, in command of the field work, are endeavoring to create a plague free zone around Oakland and Berkeley, with the object of preventing the infection from ground squirrels of the rats and other rodents of these cities. That such a danger exists is evidenced by the discovery of a plague infected woodrat in Alameda county.

During the past year three human cases of plague were reported, all being undoubtedly of ground squirrel origin. It is significant that no question has been raised as to the existence of plague among ground squirrels; the great educational campaign has certainly borne fruit for a few years ago such a diagnosis would have been assailed on every conceivable ground.

The Public Health Commission of the State Society is, as all of our members know, one of the most active bodies or committees connected with the Society. Since its very inception this commission has done a good deal of the very best, high grade work. It is now at work upon a plan to consolidate into one body a number of various committees whose work is more or less along the lines of conservation of the public health. At the coming meeting of the State Society, at Sacramento this April, the Com-

mission will report upon this and its report should be of great interest. There are in the state a number of societies, as the Tuberculosis Society, the Society for the Prevention of Venereal Diseases, the Public Health Officers' Association, etc., all doing work that directly relates to public health matters. If these could be brought together on Monday, April 18th, 1910 (the day before the meeting of the State Society) at Sacramento, doubtless it would be found that they had many things in common and some sort of consolidation could be effected. All of these various movements are in the right direction and they are all doing good; but if some energy could be saved and the work of all increased by consolidation, it would assuredly seem to be a good thing. Dr. F. C. E. Mattison, Chairman of the Commission, is now trying to arrange for a meeting at the time mentioned and it is hoped that there will be a large attendance of those interested in the various societies and committees whose work is along public health lines. If you are in any way connected with any of these societies, be sure to attend the general meeting at Sacramento on Monday, April 18th; it will be well worth your while.

At the last session of the American Medical Association, a resolution was introduced and passed, requesting all County Medical Societies to hold at least one open or

OPEN MEETINGS. public meeting each year. Such meetings will be of the very greatest benefit; the people generally do not know what medical societies are trying to do; they do not understand our present day efforts toward the betterment of public health matters; they are at sea as to the real reason for proper medical laws and for the compulsory vaccination of children. Equally are they in the dark as to the preventableness and curability of tuberculosis, and in a hundred ways they need enlightenment on matters medical, sanitary and hygienic. Therefore the holding of open or public meetings at least once a year, or oftener if possible, is strongly recommended to all County Medical Societies. Some of the County Medical Societies in California have been holding such meetings from time to time, and they have been found to be of great interest to layman and physician alike. A very profitable meeting could be held with the school board and the school teachers of the community, at which meeting school hygiene and the examination of school children could be discussed with much benefit to all concerned. The "backward child" from the standpoint of the school teacher, and then from the standpoint of the physician who can interpret much of this backwardness to physical defects and explain them and the necessity for their removal, would, in itself, make a profitable evening's program. Our State Society has urged this line of activity upon County Medical Societies for some years and it is therefore a matter of no small satisfaction to see that the importance of the work is not ignored by the American Medical Association. Do not let the present year end without having at least one such meeting in your county.

PRELIMINARY PROGRAM AND NOTICE of the FORTIETH ANNUAL MEETING OF THE STATE SOCIETY, SACRAMENTO.

APRIL 19TH, 20TH and 21ST, 1910.

Headquarters, Hotel Sacramento. Sessions, at Elks' Building. Public Health Association and kindred bodies meet on Monday, the 18th.

Railroad rates as usual, one and one-third fare for the round trip. Pay full fare for the ticket going to the meeting and be sure and get a receipt certificate from the agent at the time you buy your ticket. This must be signed by the Secretary, Dr. Philip Mills Jones, at the time of the meeting. When you present this to the agent at Sacramento, a return ticket will be sold to you at one-third the regular fare. This applies to all railroads.

Skin Eruptions Induced by Various Means
..... Harry E. Alderson

Urticaria..... Ernest D. Chipman

The Use of Arsenic in Diseases of the Skin
..... D. W. Montgomery and G. D. Culver

Exhibition of Pictures of Various Dermatoses
..... Howard Morrow

Experimental Surgery of the Hypophysis
..... H. E. Castle

Surgery of the Human Hypophysis.....
..... H. A. L. Ryfkogel

Pain as a Symptom in Secondary Syphilis
..... E. W. Twitchell

Eye, Ear, Nose and Throat Section.

Glaucoma—A brief discussion as to the cause,
and the relief of tension by sub-con-
junctival injections of sodium citrate
solutions..... Hayward G. Thomas

Glaucoma—Its experimental production.....
..... W. S. Franklin

A Method of Determining the Source of Pus
in Diseases of the Accessory Cavities of
the Nose..... Henry Horn

The Differential Diagnosis of Labyrinthine
Affections..... G. P. Wintermute

A Report of Mastoid Cases, with Special Ref-
erences to Diagnosis..... M. Stephens

Lantern-slide Demonstrations of Diseased Con-
ditions of Ear, Nose and Throat... C. F. Welty

Tonsils—The Enucleation of the Tonsil from
the Standpoint of the General Medical
Man..... Langley Porter

Pathological Histology of Tonsils... Hill Hastings

The Enucleation of the Tonsil: a Surgical,
Not a Radical Procedure..... A. J. Houston

Hyperchlorhydria..... Wm. Fitch Cheney

Value of Rectal Examinations:

a—Value in gynecology;

b—In pediatrics;

c—In general medicine;

d—In genito-urinary work;

e—In surgical conditions;

f—In examination of nervous diseases, etc.,

..... A. J. Zobel

A Plea for a State Institution for the Treat-
ment of Chronic Alcoholism and Drug
Habitues..... R. E. Bering

Some Aspects of the Squirrel Plague Question
..... G. W. McCoy

Some Points on the Etiology and Treatment
of Entresis..... E. C. Fleischner

The Doctor As the Middle Man..... W. F. Snow
Symposium on Thoracic Surgery.

The Question of Differential Pressure.....
..... Dudley Tait and Raymond Russ

Surgery of the Lungs..... (?)

Operations for Empyema..... (?)

The Future of Heart Surgery..... (?)

X-Ray Diagnosis of Surgical Condition in
Thorax..... (?)

Demonstration of Muscle Rigidity as a Sign of
Disease Within the Chest. Method of
Outlining Organs by Light Touch Palpa-
tion..... F. M. Pottenger

Tuberculous Ulceration of the Rectum
..... W. H. Kiger

The Value of Rest In the Treatment of
Tuberculosis..... Robert A. Peers

Modern Treatment of Early Tuberculosis...
..... Max Rothschild

Bovine Tuberculin in the Treatment of Pul-
monary Tuberculosis..... Wm. C. Voorsanger

Thoughts on Tuberculosis, Its Communicability
and Prevention..... Wm. S. Watson

Speech Disturbances and Their Treatment
from the Present Standpoint..... Henry Horn

Amebiasis..... Herbert Gunn

Present Requirements of Medical Schools
..... W. Jarvis Barlow

Present Status of Preliminary Medical Edu-
cation..... T. W. Huntington

A Brief History of Medical Education in
California..... Emmet Rixford

Utero-cystostomy..... Geo. B. Somers

Serum Diagnosis in Syphilis..... L. Schmidt

Report of One Year's Work with Wassermann
Reaction..... H. R. Oliver

Nephritis:
Surgery of Nephritis..... S. Stillman

Medical Standpoint..... (?)

Experimental Nephritis..... E. C. Dickson

Tropical:
Pellagra, Rabies, Amebiasis... Herbert Gunn

Hookworm..... Creighton Wellman

In *Life*, a weekly publication more noted for its smartness than its wit, and which is supposed to throw the searchlight upon the follies, foibles, sins, whims and caprices of human kind, there recently appeared a two-page illustration entitled "The Reward of Virtue." The artist has devoted his energies in making a series of drawings depicting the dog's service to man; he has grouped these about a center picture which for diabolic conception rivals Poe's best tales of the Spanish Inquisition. A hard-faced, elderly man, wrapped in a linen duster, stands with scalpel poised over a beautiful dog strapped securely to a table. A hypodermic case, a pair of forceps and scissors give evidence of his calling. One sleeve is rolled high and he is about to treat the other in the same fashion. The reader is left to imagine that the man's next move will be to spit on his hands and wade in. Just what he is going to do is difficult to say, but the Jekyll-Hyde expression would imply something heinous; possibly to cut out an eye, or amputate a paw or sever the head from the trunk, thus deriving an insane delight from the shedding of blood which would make him acceptable to the pages of Krafft-Ebing's case book.

This is *Life's* idea of humor; its tribute to the medical profession,—for it wishes to imply that the bloodthirsty individual is a physician. Medical humanitarianism is denoted by the hard face; surgical asepsis is pictured by the dirty linen duster; the cruelty and barbarity of medical research find expression in the pathos of the poor beast who is fastened as in a vise.

This horrible illustration, so unwholesome that it should have been suppressed by the authorities, is not without purpose. It is this silly journal's contribution to the fight which is being made against the Rockefeller Institute of Medical Research by certain fanatics in New York. This publication, whose view of life is obtained from a swiftly moving automobile or the windows of a fashionable club, has long been opposed to doctors; it is a fitting member of an alliance which would seek by any means, fair or foul, to stifle progress in the healing art. In vain do physicians show the human benefits of animal experimentation; in vain is Flexner's work at the Rockefeller Institute held up to their view. That the mortality in cerebro-spinal meningitis has been reduced from seventy-five to twenty-five per cent is mere drivel to these misguided sentimentalists. People who do not choose to fight fair are not open to argument.

One hears, from time to time, more or less talk about "machines" that run medical societies, and the comment is always derogatory—or worse. What does it all mean? **MEDICAL MACHINES.** It simply means that those who have not the energy, the ability, the time or the inclination to do a certain amount of work, object when they see others doing it. Everything in the world is run by some sort of a machine. A few always do the work for the many. Lydston, and some other men with chronic ingrowing grouches, have expended a lot of energy (and no small sum of money, by whom contributed has not yet been explained) in attacking the American Medical Association, the cry being continually raised that it is run by a "machine." Well, for the sake of argument, let us suppose it is so run; do you not think it is a pretty good machine? It has built up the Association in the last ten years until now we own the largest and best medical journal published; we have nearly 40,000 members and we own over a half million dollars' worth of property. Is that something to be complained of? In running the A. M. A., modern business principles have been employed; authority and responsibility have been concentrated in one individual; it is up to the manager of any business to "make good"; if he does not, out he goes. That is exactly the case with the A. M. A.; the Secretary and General Manager is responsible, and he has made good. Why should the Trustees take a step backward and appoint a number of managers, thus dividing responsibility, when common sense dictates that the better policy, and the more successful one, is to concentrate responsibility and authority? It is absurd. Furthermore, it is a singular thing that, while the complexion of the House of Delegates changes from year to year, the policy of the Trustees is nevertheless endorsed each year; because it has been shown to be a good policy, and it is self-evident that the Association is being successfully managed; what more does anyone want? What more could anyone ask? If you were the owner of big business or a manufacturing plant, would you ask more than to have your business grow, develop, improve, increase with each passing year? It is absurd.

The Pharmacopeia had its origin in 1820, the first convention being composed of delegates from incorporated medical schools and medical societies exclusively. **THE ORIGINAL PHARMACOPEIA.** It was not till 1840 that similar pharmaceutical organizations were invited to co-operate in the work of compiling the Pharmacopeia. Since 1840 the medical representation and medical interest in the compilation of the Pharmacopeia have steadily decreased until it is but a shadow dominated by pharmaceutical interests which, unfortunately, are not entirely free from the suspicion of more or less commercial interest. The work originated with physicians and

was intended to be an authoritative text on materia medica preparations used by physicians; and this original intention should be restored. It is therefore urged that every incorporated medical society and college send three delegates to the Pharmacopeial convention which will meet in Washington, May 10, 1910. Our State Society is urged to elect three delegates to this convention; delegates who can and will attend the meeting and make a suitable effort to see that medical authority in formulating the Pharmacopeia is restored. Any member who can and will attend the convention, May 10, 1910, is requested to notify the secretary, Butler Building, San Francisco, immediately.

The United States Pharmacopeia should be of great interest to physicians and pharmacists alike; as a matter of fact, however, most of the former and a good-
DELAYED RECOGNITION. ly number of the latter have never even seen a copy of it and know nothing as to its contents or, indeed, what it is about. The work of getting out such a book is very great and is controlled by a comparatively small number of trustees, since 1860 mostly made up of men interested in pharmacy or in the publication of books on therapeutics which are, necessarily, based upon the Pharmacopeia. It is a distinct recognition of the work of the American Medical Association, in that the secretary of the association has recently been elected a member of the board of trustees of the Pharmacopeia. The association has done more to improve conditions in pharmacy and materia medica, in the last few years, than any Pharmacopeial convention or any board of its trustees ever did, and doubtless the influence for good of the association, expressed through the medium of its secretary on this board, will be decidedly marked and very valuable. In the *Midland Druggist* for December is an article on this subject in which the work of the association, and of its secretary, Dr. Simmons, as well as the wonderful work of Prof. Puckner, the secretary of the council on pharmacy and chemistry, are highly recommended. This is only noteworthy because of the fact that it is about the first time that any pharmaceutical publication (except the *Druggists' Circular*), has had anything good to say on the subject. Drug journals get a lot of their income from nostrum advertisements; therefore, drug journals do not like to be forced to recognize that a goodly share of the things they advertise are rotten frauds; therefore, they do not like the association or its council on pharmacy and chemistry. It is very simple. It is to be hoped that the next edition of the Pharmacopeia will represent less archaic material and more of what the practising physician needs and uses. Also, it is to be hoped that various "interests," publishing and otherwise, may be markedly less in evidence than has been the case in previous editions.

ORIGINAL ARTICLES

THE USES OF BACTERIAL VACCINES IN URINARY DISEASE.*

By GRANVILLE MacGOWAN, Los Angeles.

Out of the labors of many men whose lives have been given up to the investigation of the wonders, greater than any fairy tale ever told, of serum therapy, has grown the marvelous and miraculous application of the principles of bacterial vaccines.

Great aids to medicine they are, at times averting the necessity for surgical interference; and great aids to surgery at times, when used with judgment, and systematically, with appreciation of what is required of them, rendering successful operation certain where without them cure would be doubtful.

It is understood that in presenting this paper, I am to give you my individual impressions as to the value of the use of these vaccines in the treatment of infective diseases of the urinary organs, not compiled from the printed reports of others. The report upon the use of tuberculin is based upon the combined experiences of my associates, Dr. Henry Lissner, Dr. Frank Dillingham and myself, each in treating cases for himself, and both Dr. Lissner and Dr. Dillingham in treating cases for me. All opsonic work has been done by Dr. Lissner, the conclusions are not my conclusions but our conclusions, all work being checked between us.

The work upon the gonococcus vaccines is also the work of all three of us. The staphylococcus and colon inoculations are my own and are given for what they are worth.

Of course the reliability of a vaccine will depend entirely upon the intelligence and care of the individual preparing it, and the attention given to its preservation. It has been our custom to make individual cultures, and prepare, where there was any variation from the type, an autogenous vaccine, and when we obtained any particularly pure strain, to preserve it for stock. These vaccines have been prepared by Dr. Henry Lissner and Dr. Ethel Leonard.

In many cases we have controlled their exhibition, especially that of tuberculin, for several months, by frequent opsonic indices, so that we might, so to speak, get the reactive gait of the patient. In others, staphylococcal and streptococcal infections, no indices were taken at all as the clinical indications were as perfectly plain as the results obtained were prompt.

I. Tubercular Infections of the Urinary Organs.

Whenever tuberculin is referred to in this article, Koch's T. R. is meant.

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

I have had a large experience in the treatment of these diseases, and have grown into an optimist as to their curability. Each therapeutic measure is regarded merely as an adjunct, tuberculin being one of the most valuable. In no case has tuberculin been used alone, or entire reliance been placed upon it to effect a cure. It has been a plus quantity used in addition to hygienic, antiseptic, analgesic, and the general or local surgical measures which I have previously spoken of before this Society. In all cases but one it has seemed to possess distinct helpful value.

In establishing the dose for each individual there is no general law to be observed, except that it shall not be so much as to produce a marked general or local reaction. As a rule the greater amount of tissue involvement, the less the therapeutic dose required.

One is always confronted in cases of general tuberculosis, or where the genital organs, the kidneys, or the ureter, are involved with the bladder, by the liability of auto-inoculation occasioned by active movements, sexual excitement, the defecation of constipation, local massage, or the breakdown of caseous masses following septic infection, etc. It is in uncomplicated vesical tuberculosis, or in the early stages of renal tuberculosis, before caseous degeneration and ureteral thickening and occlusion takes place, that doses of considerable size are not only tolerated, but prove beneficial. Really it seems to us that in simple vesical tuberculosis, where the cystoscope shows plainly vesical involvement, with the presence of tubercle bacilli in the urine, and no discoverable lesion elsewhere, the danger of auto-inoculation is very small.

Matthews, first assistant to Sir A. E. Wright, states that 1-4000 mgm. of tuberculin is a sufficient dose for any case of tuberculosis of the genito-urinary organs. Walker speaks of giving 1-500, and even 1-250 mgm., fortnightly or monthly, in genital or renal tuberculosis, for years, with marked benefit upon the pain. Of course the susceptibility of the individual to bacterial reactions accounts for the wide difference in the doses as here exemplified. We prefer to give moderately small initial doses with considerable frequency, that for a child being from 1-10,000 to 1-5,000 mgm., and for an adult from 1-3000 to 1-2500 mgm., and we rarely increase this to more than 1-1000 mgm. in an adult, and 1-3000 in a child. We have used slightly greater doses at times but we believe that they are unnecessary and may prove injurious. For indications for increasing the dose above 1-1000 mgm. no instructions can be given, for each case is to be studied and treated as an individual—as if it were the only case. Generally speaking, when a case comes to a standstill, the dose can be increased with beneficial results. We now have individuals who have taken injections of 1-1000 mgm. every 4 or 5 days for periods approximating a year, always as I have said, with benefit. One case received 1-1000 mgm. every other day, because he said he felt so much better after each dose that it was decided the more fre-

quent dose would prove of greatest benefit. The opsonic chart of this case which is attached shows the relation of the reaction to the index, and also the effect of each injection to the index. Favorable progress is indicated by the relief of pain and cystospasm, the lessening of the frequency of calls for urination, and the modification of haemorrhage and pyuria, together with the healing of existing ulcers of the bladder wall, and the disappearance of the irritated, paprika sprinkled condition about the ureteral opening on the affected side. Urinary frequency is benefited almost from the first, but continues above the normal long after the pain has disappeared. Of course where there is interstitial or parenchymatous infiltration of tuberculous granuloma into the bladder wall, with thickening and destruction of tissue, or the ureters are greatly involved, or the kidney substance destroyed by abscess formation it would be foolish to look for any rapid alleviation even with the assistance of tuberculin.

Such of these cases as are surgical should have the injections often enough to raise the index before any operative interference is attempted.

To sum up—we do not regard the opsonic index as a *sine qua non* in the treatment of tuberculosis by injections of tuberculin. It has a value, and a decided one, when carried out by a trained person in establishing relatively the susceptibility of the individual to the influence of inoculations. But it is an expensive and onerous procedure, with too great an opportunity for individual variation to ever be mathematical in its workings, by any, except the highest trained experts in constant practice, and is consequently entirely beyond the use of the general practitioner of medicine, who must treat the great bulk of the tuberculous.

(1.) While injections of tuberculin have a definite usefulness in the treatment of tuberculosis of the urinary organs, they should not be depended upon to effect a cure of the disease.

(2.) The initial dose of tuberculin is from 1-5000 to 1-2500 of a mgm. in adults and the progressive dose may be gradually and safely raised to 1-1000 mgm.

(3.) Such doses will not be followed by any disagreeable or dangerous reactions, and distinct therapeutic benefit may commonly be observed after them.

(4.) Careful clinical observation of the symptoms complex of the disease renders the opsonic index unnecessary.

(5.) No case should be esteemed cured except upon the cessation of the disturbing symptoms of pain, frequency of urination, haematuria, pyuria, for a period of at least six months, coupled with the negative finding of tubercle bacilli in the urinary sediment. Animal inoculations, at least two, should be the deciding test of cure.

Appended are four case histories which serve as illustration of the routine of treatment as used by us and its results, which are sufficiently encouraging.

Case 1: A. W., 16 years old, school girl. Average afternoon temperature, 100. She has been ill for five months and has gradually lost weight and strength. Her most marked symptom is urinary frequency without pain, the intervals being from 3 to 15 minutes day and night. About July 1st blood appeared in the urine, which is now a port wine color, and contains pus and tubercle bacilli, but no kidney cells or casts. Though urination is not painful, the urethra is extremely sensitive to touch.

Aug. 1, '08. Cystoscopic examination.

Bladder wall edematous, ulcers abundant. Bladder capacity under deep anaesthesia, 25 cc.

Treatment:

Koch's T. R. commencing with a dose of 1-4000 mgm. every four days, the dose being slowly raised until a maximum dose of 1-1000 was taken. This treatment has been continued until the date of this report. A summary of her condition is as follows: Urinary frequency, one hour or longer during the day. No pus or blood in the urine—no temperature, feels fine, general health good, has increased in weight 30 lbs. Sleeps as a rule all night—with some incontinence.

Case 2: G. K., 30 years old. Patient of Dr. Gibbons. Opsonic indices and stainings for tubercle bacilli by Dr. Henry Lissner.

Family history, negative. Four years ago she had diphtheria and has not been strong since. Two years ago, dysuria commenced, at first moderate, it gradually increased in severity until in April, 1908, the pain was very severe, the intervals about hourly, and the urine was stained with blood.

Physical examination of other organs negative. Cystoscopic examination.

Edematous bladder, mucous membrane had many minute ulcers scattered through it, and there was one large irregular ulcer in the right lower quadrant external to the ureteral orifice. Urine contained blood, pus and tubercle bacilli in great abundance. Following this examination the patient was absent from California until Aug. 3rd, at which time treatment was commenced.

Her weight, normally 155 lbs., was reduced to 122¼ lbs., and she was weak, and in continuous pain with her bladder, and her digestion was greatly impaired.

Hygienic treatment, rest, sleep in the open air, and forced feeding were carried out and on Aug. 5 she received her first injection of tuberculin. At the end of Sept. her weight had increased to 127½ lbs., but there was no change in the dysuria. At the end of Oct. she weighed 131 lbs. and had greatly improved in strength. At the end of Nov. she weighed 132 lbs., the gain in strength was continuous, and the pain on urination was much less.

Cystoscopic examination showed the ulcers in process of repair, there was much less pus in the urine and the tubercle bacilli were much lessened in each field. At the end of Dec. the urinary frequency had decreased and the bladder capacity increased.

At the end of Jan. she was still stronger; the oedema of the bladder had nearly disappeared and the large ulcer had healed completely. Her weight remained at 132 lbs. Through Feb. and March the pain gradually disappeared entirely, the urine became almost clear and though tubercle bacilli were still present, they were found only after careful centrifuging and with much difficulty.

Local treatment did not figure greatly in the result, for it consisted in Aug., Sept. and Nov., of irregular irrigations of boric acid and sulphate of quinin solutions. From Dec. she has had tri-weekly vesical lavage with 1-30,000 silver nitrate solution.

Her strength has improved continuously but her weight has been at a standstill for some time, her physician thinks this is owing to occasional rather severe attacks of indigestion.

At this writing she can hold urine for five hours during the day and rises only twice at night. There is very slight pain on urination.

Amelioration of the pain has always followed promptly the injections of tuberculin.

Case 3: May 27, '08.—L. B., age 28. Dairyman. Normal weight 162 lbs. Sent to me by kindness of Dr. J. T. Stewart. Family history negative. No previous diseases except gonorrhea in 1906; this was easily cured. In Dec., 1907, frequent and painful bloody urination was first noticed and since that time the symptoms have been progressive, until now during the day he is obliged to urinate every fifteen minutes and at night dribbles continuously. Intense pains in glans, and cystospasm.

May 27, cystoscopic examination with direct instrument. Bladder capacity under deep anaesthesia 60 cc. Walls infiltrated, mucous membrane covered with pus, and full of typical tuberculous ulcers. Ureteral openings could not be distinguished. Ulcers most abundant upon the right side. Tubercle bacilli abundant in the urinary sediment.

There is marked prostatic and vesicular infiltration, these organs are bound together in one great mass by inflammatory products. Neither kidney could be palpated. Testicles normal. The tuberculous process seems to be limited to the urinary and sexual organs.

His general condition is distinctly bad. He has afternoon temperature, night sweats, loss of appetite and his weight reduced, and strength greatly impaired.

Treatment: He was placed immediately upon injections of tuberculin 1-4000 mgm. These injections were given every two, three, four or six days under opsonic control, for purposes of experiment, during the months of June, July, August, September and November. The quantity was gradually increased to 1-800 mgm. and finally a dose of 1-1000 mgm. was settled upon. This has been continued every fourth day until the present.

In addition to the injections he has received the regular treatment internal and external, before mentioned in this article.

The local treatment consisted for the first three months in daily instillations of 1 cc. of a solution of sublimate 1-10,000 to 1-7000. Early in Sept. the right seminal vesicle, and a gumma of the adjacent bladder wall, broke down and the abscess cavity pointed in the prevesical space on the left side. This was opened freely, curetted and cauterized with a 50% sol. of zinc chloride. It was found to communicate with the bladder by a narrow opening low down. His condition was so alarming, just before and during the operation, that I thought we would lose him. The wound was stimulated with iodoform and Peruvian balsam packing, was repeatedly cauterized by introducing fleches of the moulded stick of silver nitrate, and some forty exposures to the Roentgen Ray. It finally closed solid about Jan. 15, 1909. Since this time his improvement has been progressive; he has increased in weight from 140 to 156 lbs.; he has laid aside the urinal which he wore for many months, his frequency during the day is from 45 to 90 minutes and at night hourly; the bladder capacity is 60 cc. without anaesthesia. The pain on urination has greatly diminished and the continuous pain in the glans disappeared. The prostate and left vesicle are much smaller, and the right vesicle and right side of the prostate are atrophied now. The bladder remains a small, thick globular organ, the examination of which by the cystoscope is not very satisfactory.

Case 4: X. Y. Z., age 47. Patient of Dr. Wynne of Redlands.

June 4th, 1908. Infection with organisms of Neisser twenty-five years ago, which was followed by stricture and perineal fistula. For the past five months he has had a profuse, thin, sticky, mucopurulent discharge from the urethra. Examination of this discharge and the expressed contents of the prostate and seminal vesicles, by smear, and culture, negative as to diplococci. Tubercle bacilli were found in abundance, but none in the urinary sediment. He has lost thirty pounds in weight since the urethral discharge commenced. He is very feeble, extremely sensitive to pain, nervous and apprehensive, and has suffered for weeks from drenching night sweats. Urinary frequency, every two hours. Pain great. The glans penis is covered with shallow ulcers and there is a cicatricial and ulcerated contraction of the meatus, and the urethra immediately posterior to it. This was freely incised to allow of inspection of the pendulous and anterior perineal parts of the urethra.

June 15th. First injection of tuberculin 1/3000 mmg. Inspection of first 2½ inches of the anterior urethra through an endoscope revealed numerous minute tuberculous ulcers which bled easily. Posterior to this the urethra was narrowed to 16 F. The face of the constriction was covered with small, wart-like growths. All that portion of the urethra to which reference has been made was painted every second day with 25 per cent solution of silver nitrate. From the beginning he had received internally a Guaiacol preparation, Fagasol by name, Urotropin, and at night Camphoric acid, for

the severe perspiration. He also received 4 cc. of 10 per cent Iodine Vasogen by inunction into the abdominal wall daily.

On the 23d of June the fistulous tract in the perineum becoming acutely inflamed, he agreed to radical measures, and on the 25th I did an internal urethrotomy, enlarging the calibre of the urethra to 30 F., excised the entire tuberculous tract in the perineum and cauterized the raw surface with a 50 per cent solution of Chloride of Zinc. A part of the floor of the bulbous urethra was removed by this operation. A catheter was passed into the bladder through the urethra from the meatus and tied in for three days. Subsequent treatment consisted in the passage of sounds daily for fourteen days, until the healing of the perineal wound had progressed so that he could be about, and then every fourth day until November 1st; daily irrigations of urethra and bladder with 1-30,000 silver nitrate solutions, and application of fused silver nitrate, or Liquor Antimonii to the urethral ulcers, and the granulating surface in the perineum, as necessary, were made until they were all healed. In addition, Roentgen Ray exposures to the site of the fistula, before and after healing; prostatic massage every four days, hypodermic injections of tuberculin every four or five days and the medical treatment referred to above were used.

Improvement was gradual but steady, both in general strength and local symptoms. He was esteemed cured at the end of the first week in November, when the urine was clear, the intervals of urination reduced to once in four hours during the day, and no necessity for rising at night existed any longer. The discharge from the urethra ceased in October. No tubercle bacilli were found in the urinary sediment after the middle of September. The opsonic index, which was taken regularly in the case and the chart of which is attached, became normal September 15th and has remained so ever since.

He comes to me now every month for inspection, and at the time of writing this report, he is more than forty pounds heavier than he was a year ago, urinates a large stream of clear urine without pain or frequency, has a soft, pliable perineum, has no nodules in his prostate, has no ulcers in his bladder or urethra, has a normal index to the tubercle bacillus, and appears to be in every way perfectly well.

Use of Vaccines in Staphylococcal Infections of the Bladder.

As an illustration of the power of a vaccine to remove certain alarming toxic conditions existing in a chronic infection of the bladder, we cite this case: February 13, 1909. T. W. G., 65 years old; manufacturer.

Prostatic for two years; passes small quantities of urine every five to ten minutes with much pain. Residuum 250 cc., which is acid and full of pus and micro-organisms; no marked impairment of renal function. He has had temperature and increased pulse rate for several weeks; has the facies of an infected person, but is not anaemic.

February 16, 9 a. m. Suprapubic prostatectomy without difficulty. After operation, the temperature and pulse remained high, the former ranging in the evening from 100.6 to 102.F, and the latter being commonly about 100.

As the bladder was closed tightly about the De Pezzer drain, all of the urine was easily collected and when measured and analyzed found practically normal in amount and composition. There was no yellowness of the skin or conjunctiva. He took only milk and lime water, or milk and Vichy, or peptonized milk. Yet there was a drowsiness and languor, with a sense of extreme weakness, accompanied by nausea, that could only be accounted for by an increase of the infection existing before operation. A culture was made and the predominating organisms were found to be the *Staphylococcus Aureus* and *Albus*.

On the 21st he was given an injection of 50,000,000 of this vaccine. On the 22d he was much brighter and asked for food, which he had not done before. On the 23d he had relapsed into hebetude. A second injection of the same amount was given. On the 24th and 25th he was better. On the 26th a relapse commenced and he was given a third injection. Following this there was a fall both in temperature and pulse rate, which had not been noticed before, and an intellectual brightening and a stomachic wake-up that was encouraging. On the 1st of March the nurse reported that there were evidences of return of the nausea and languor. I immediately gave him a fourth injection, after which there was no return of these ominous symptoms.

The relation between the cause of the infection and the results of the remedy do not seem accidental to me.

The ultimate result of the operation on this gentleman has been entirely satisfactory.

The immediate results of the use of Vaccines in appropriate cases are sometimes absolutely startling and appear like the work of a magician, as instanced in the case now related.

November 9, 1908. J. T. McF., farmer, patient of Dr. J. T. Stewart.

He has been a prostatic for two years, led a catheter life for one year, and has now reached the limitations of the latter, for the passage of a stiff instrument only is possible, and that after prolonged and difficult effort. Urine contains pus, blood, much albumen, but no casts. He is septic and has suffered much pain, and has had repeated chills and high temperature.

November 12th, prostate removed through perineum without great difficulty.—Spinal anaesthesia.

On the 14th of November he developed a cough which grew worse, but without any signs of pneumonia. On the 18th he developed a peculiar languor, nausea, restlessness, stupidity entirely unlike uraemia, which increased as the days went by, the temperature, pulse and respiration all increasing, the latter bearing no fixed relation to the former. For all this we could discover no cause. His urine, which came away through drainage tubes, was normal in quantity, and the quality good, and there was

no cessation of the liver functions. On the 22d of November he commenced to have involuntary movements of the bowels and the septic condition became alarming. Dr. Stewart and I were both at a loss for the cause, which, not being able to find, we blindly attributed to the grippe.

While irrigating his bladder on the morning of the 22d, I noticed a lot of golden yellow granules in the return flow. These I at first thought were particles of the vaseline used to lubricate the catheter, but upon examination I found that they were little clumps of mucous or pus, and that the task of washing them all out seemed endless. Upon close examination they looked so much like giant colonies of the *staphylococcus aureus* that my curiosity was excited, for if they should be, it was evident that the bladder had become a culture ground for this bad microbe. I collected some of them on some sterile gauze and took them to the laboratory, and Dr. Lissner prepared a culture which proved to be an almost pure one of this special coccus.

At 2:45 p. m. on the 23d of November we gave him an injection of 80,000,000 of the *Staphylococcus Aureus Vaccine*. This was followed in a few hours by a drop in the temperature from 102.6 to 99.6 and an improvement in the lethargy and stupidity.

On the 24th of November at 10 p. m., the temperature having risen to 100.6, and the lethargy increasing again, he was given an injection of 60,000,000 of the *Staphylococcus Vaccine*. At midnight the temperature had dropped to 98.6 and he had sunk into a peaceful sleep which lasted until 8 a. m., when his temperature and pulse were normal, his respiration had fallen to 22, and he was alert, intelligent and asking for food. Within two days no further yellow granules could be found in the bladder washings, and though he had a long convalescence, due to a variety of depressing influences, he never from that day to this has had any return of the septic poisoning, which was so clearly due to the *Staphylococcus Aureus*, and which so promptly yielded to the vaccine.

The Use of Vaccine in the Treatment of Gonorrhea.

When it was first known that a vaccine could be prepared from the gonococcus, its advent was hailed with fervor, and the long-looked-for quick cure was believed by many to have been found.

We have treated quite a number of cases of gonorrhea, just how many exactly I cannot say, but surely as many as one hundred, both acute and chronic, the latter predominating, a few times with the gonococcus vaccine alone, but commonly, and always now, with the remedies and measures usually employed in the treatment of this disease.

Acute gonorrhea is a disease of such variable virulence, subsiding in a very limited number of cases in persons whose tissues possess a marked power of resistance to the specific organism, in from a very few days to two weeks, under such a variety of remedies both local and general, and resisting all treatment in so many cases for a period of from four weeks to four months, that it is hard to judge accu-

rately how much influence the use of the vaccine has in producing a cure. We are entirely satisfied, however, that our cases progress better, that the discharge lessens and disappears quicker, and that the ardor urinae is less intense, and complications like chordee, epididymitis, and prostatic and vesicular inflammations are of less frequency and of milder type, when very small doses, 10,000,000 to 20,000,000 are used regularly from the beginning; and that the symptoms of the disease can be at any time aggravated by the use of large doses.

There are a vast number of men and women in whom the disease lasts from four months to forty years. It was related to me once by Von Langenbeck, the celebrated Berlin surgeon, that a great German general whose pluck and military genius early in the nineteenth century were a deciding factor in preventing the continent from becoming all French, contracted this disease when he was a lieutenant not more than twenty years of age, and still had it at his death, which occurred when he was past seventy.

We see many of these chronic cases. I may say that I see very many more of them than I do of those in the acute stage.

Our routine in all cases that apply on account of chronic urethral discharges, or irritable bladder, or obscure pains in sacral region, whether they have manifestly large prostates or not, is to carefully express the contents of the prostate and seminal vesicles into a sterile glass receptacle, and from this prepare cultures.

It is astonishing how often, under these circumstances, we grow the gonococcus. Many of these people deny honestly that they have ever had gonorrhea, but nearly always recollect and state at a subsequent visit that they had, five, ten, fifteen or more years ago, and Dr. Dillingham had one case recently who stated twenty-three years ago, a slight case of urethral discharge which disappeared very easily.

In a very large percentage, probably eighty, of these very chronic cases we find the colonies of a Gram positive diplococcus growing side by side with the gonococcus. It has the same shape as the gonococcus, but instead of having an average length of 1.25, it measures from 2 to 2.50. We fail to find a description of such a Gram positive diplococcus, growing with the gonococcus upon nutrient agar plates spread with human blood, and hence are not able to give it a name. It corresponds in some respects with the stabchen diplococcus of Neisser. It seems to us, however, from the character of cases we find it in, and its association, that its part in the inflammatory process is not that of an innocent bystander. Such cases we always treat with an autogenous vaccine prepared from the growth of both organisms. I know that since we have added this therapeutic agent to our armamentarium we cure these chronic cases in from periods of three months to one year, and I doubt very much whether we ever really cured any of them before. But we do not depend for the cure upon this remedy. We still treat all granular patches in the urethra by direct applications through the endoscope, dilate any strictures that

may be present, massage the diseased prostate and vesicles, use urethral and vesical irrigations and instillations, and general tonics; but we do not waste time and money by administering balsamics, plain or in nauseous mixtures.

When I say we cure, I mean by a cure the entire subsidence of the symptoms, along with the inability to any longer cultivate the organisms, after several trials three or four weeks apart.

The use of vaccines prepared from the Colon Bacillus and Pyocyaneus where these organisms were the evident agents of infection. My experience with the vaccines of these organisms has been confined to five cases of chronic cystitis. I cannot honestly say that I have seen any benefit from their use in any one of the five cases.

Finally to correct any misapprehension as to our position as to the value of all vaccine treatment in urinary diseases.

It is a + therapy. It is to be added to the ordinary approved methods, used as an adjunct, and not to be depended upon ever as a specific method of curing the disease which may be in question.

THE TREATMENT OF GENITO-URINARY TUBERCULOSIS WITH TUBERCULIN.*

By F. M. POTTENGER, M. D., Monrovia.

I regret very much that I am unable to bring before you a paper based upon practical experience in the treatment of tuberculosis of the genito-urinary tract by means of tuberculin, but my experience in this field is entirely too limited to make this possible. However, I believe that a paper dealing with the theoretical application of tuberculin with the report of a few cases treated by it will be of some help to those who are attempting to handle these cases.

Inasmuch as our line of therapy in any given disease depends upon our conception of the nature of the disease, it is well at the outset to discuss the nature of tuberculosis. Tuberculosis belongs to the class of infectious diseases—that is, it is a disease produced by a specific micro-organism which requires certain conditions for its growth and which always produces certain conditions in the tissues in which it is implanted. No matter where the tubercle bacillus finds lodgment in the body, it starts up certain definite changes in the tissues. Certain definite phenomena occur. The bacilli endeavor to fortify themselves and the tissues endeavor to destroy them. Resulting from this struggle, we have those conditions which produce the visible tubercle and the changes which it subsequently undergoes, and the invisible phenomena attendant upon the stimulation of the physiological processes of immunization.

The etiology and pathology of tuberculosis are the same whether the focus of infection be in the lungs, the larynx, the bones, the genito-urinary tract or

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

any other tissue. Of course, the pathology differs somewhat as do the tissues in which it is located, in that the disease process must conform to the specific tissue involved and it must be influenced somewhat by the function of the organ in which the focus is located; yet, in the essential pathological features, and in the features which make for cure, there is no difference. While it must be recognized that such infections as tuberculosis of the bones and joints where the parts can be put at rest and kept so without any foreign irritants interfering, or tuberculosis of the glands where the same conditions obtain, and where further the parts are constantly bathed with lymph which is the carrier of antibodies, are easier to cure than tuberculosis of the lungs (except in the early infections) where the parts are kept in constant motion, or tuberculosis of the intestines where the parts are constantly bathed with the irritating intestinal juices, or tuberculosis of the larynx where the part is kept constantly irritated by speech, coughing and the passing of secretion from the lungs below, or tuberculosis of the kidney and bladder where the parts are constantly subjected to the irritation produced by the presence of urine; yet, aside from these differences incident to the location of the lesion, the cure in all instances is the same and is brought about by the action of the toxins which are elaborated by the tubercle bacilli (tuberculins) acting upon the body cells and causing them to produce protective substances whose function it is to destroy the bacilli and their toxins. In order to grasp the rationale of cure we must not lose sight of the fact that tuberculosis is an infectious disease and like all of this class has a tendency to cure itself. Within the bounds of its own pathology lies its own cure.

Tuberculosis of the genito-urinary tract is probably always secondary to tuberculosis of some other organ in the body, the infection having been carried from the original focus by the blood stream. While we may not be able to locate the primary lesion, yet a moment's thought will show that a primary focus in these parts is practically impossible.

It might be profitable to pause for a moment and study the phenomena attendant upon the healing of a tuberculous focus. There are three factors in the cure: the stimulating toxin which is a product from the tubercle bacillus, produced either as a secretion, an excretion or as a result of the destruction and disintegration of dead bacilli; the cell which receives the stimulation of the toxin and under favorable conditions responds by producing protective substances which tend to destroy the bacilli and their toxins; and the application of the protective bodies at the seat of infection. The action of every remedy which is specifically directed toward the cure of tuberculosis must act in one of these three ways: it must furnish the specific stimulating toxin for the cells, influence the cells in such a manner that they will be able to respond more fully to the stimulation or aid in bringing the protective bodies in a more direct application to the bacilli and their toxins.

If a tuberculous focus heals spontaneously, it does so because the stimulating toxin was furnished by

the patient in the proper amounts, the cells of the body were in the proper state to respond and the conditions about the focus were favorable for the direct application of the antibodies. Where failure results, any one or any combination of these factors may be at fault.

In this connection it is interesting to discuss the evolution of the treatment of tuberculosis. The first measures that were applied were those which have a tendency to aid the cell; rest from work and business worries, change of climate, open air, good food and ordinary medicinal tonics. These were able to convince many unwilling minds that tuberculosis is a curable disease; but such measures were often disappointing, even in early cases where it seemed that they should have succeeded. Nevertheless, it is due to this class of remedies that the curability of tuberculosis was established.

From the fact that so many of the measures which were directed toward the cure of tuberculosis were associated with open air, such as change of climate, a stay in the country, an open air occupation, a trip to the mountains or a sea voyage, many erroneous opinions gained credence as to the manner in which the cure was produced. Those who observed the cures in the mountains ascribed the cure to the altitude and fancied that there was some certain altitude which conferred immunity to tuberculosis; those who saw the cure result from sea voyages thought that there must be something specific about the sea air and decided that it was probably the greater content of ozone; while those who saw favorable results in low altitudes near to or distant from both mountains and sea thought it must be due in some mysterious way to the open air. The truth is that tuberculosis can be cured in all climates. Neither the air of mountain, sea nor plain has any specific action upon the disease, but each is of value, as it reacts upon the patient, improving his various bodily functions and increasing his nutrition, thus preparing the body cells for a ready and full response to the stimulation of the tubercle toxins. An open air life is the natural life and the one which is most conducive to bodily strength and vigor, one of the conditions which is most favorable to the cure of tuberculosis.

The production of tuberculin and its application to the cure of tuberculosis in 1890-1891 marks the first application of the artificial introduction of the specific stimulating toxin in the cure of tuberculosis. Owing to the lack of knowledge of both the remedy and the disease on the part of those who were carrying out the first clinical test of tuberculin, the results were disastrous and tuberculin received a blow from which it has not yet entirely recovered. It seems very difficult for a conservative profession to divorce from tuberculin the harmful results which came from the wrong use of the remedy when it was first introduced. This attitude, however, has about as much to commend it as the attitude of society in ostracising a man because he had served a term in the penitentiary, although never guilty of the crime for which he was convicted. To-day, the principle upon which tuberculin therapy is based is

established and the remedy is being constantly successfully applied in the cure of the disease. To be sure the best method of its employment may not yet be known, but its value is established beyond doubt. This is the great advance in the rational treatment of tuberculosis.

With the proper administration of the two classes of measures mentioned above it is possible to greatly increase the specific antibodies in the blood and raise the patient's resisting power toward the tubercle bacillus. Still we may not cure the patient, for the antibodies may be prevented from acting upon the bacilli. As a means to overcome this we attempt to divert as much blood to the focus of infection as is possible; in other words, we attempt to produce a localized hyperaemia about the focus. This is the last but not least important of the three classes of measures necessary to cure. In some locations it is easy to obtain, in others, difficult. In all, it is easier, the slighter the infection. In genito-urinary lesions this is quite difficult, save as it is produced as a result of the tuberculin reaction, except in tuberculosis of the testicle, where a hyperaemia may be produced by applying a piece of rubber tubing about the scrotum and penis in such a manner as to obstruct the return flow of blood.

It will now be readily understood that a combination of all these measures is necessary to produce favorable results. It will also be understood why fresh air and tonic measures alone so often fail, and why many cases which refuse to yield to these respond readily when tuberculin is added. It will be further understood why even when both classes of measures are faithfully and intelligently applied, there are still cases which will not get well. In spite of these failures, a combination of these three measures constitutes nature's method of cure and has to recommend it the fact that it is rational and that the same treatment tends to cure tuberculosis wherever the lesion or lesions are found. If it succeeds, it cures the patient without any unnecessary loss of tissue and without the needless sacrifice of important organs. Its rational and conservative nature commends it and recommends its trial before surgical intervention, unless the case be one which demands immediate surgical attention.

Heretofore the treatment of genito-urinary tuberculosis has been considered as surgical where that was possible, and where not possible the case has been looked upon as practically hopeless. Therefore anything that offers hope, even though it be uncertain, is welcome. What percentage of cases of genito-urinary tuberculosis can be successfully treated by the hygienic-dietetic-open-air treatment when intelligently combined with tuberculin, I do not know; but every one that can be so treated is so much gained over the old method. One of the unfortunate occurrences in connection with operative procedures has depended upon the impossibility of determining whether or not other foci which were equally dangerous were present. Quite often one kidney is removed and after a short time the other also shows signs of disease; a testicle is re-

moved and in a short time proof of other lesions in other parts of the tract are evident; or an ovary or tube is removed to be followed soon by disease of other parts of the genito-urinary system. These occurrences are sufficiently common to make us halt and consider any other method that offers a reasonable hope of eradicating the disease from all foci; and especially if this hope is accompanied by the possibility of saving important organs, and if at the same time it does not jeopardize the health or life of the patient. While I would not go so far as to claim this to be the only treatment for tuberculosis of the genito-urinary tract, yet I believe that it is sane teaching to advocate a fair trial of tuberculin supported by hygienic measures in all cases before operative procedures are resorted to.

Since the introduction of tuberculin in the treatment of tuberculosis many observers had reported cases of genito-urinary tuberculosis which had healed; but, little attention was given to these reports until the work of Wright seemed to offer a method of administering tuberculin in these cases which appealed to the profession as being unattended with danger. While the later experience of nearly all clinicians seems to establish the fact that the opsonic index does not need to be taken as a guide in the administration of tuberculin, yet the work of Wright popularized tuberculin and presented it to the members of our profession in such a manner as to appeal to them and induce them to try it, with the result that patients with tuberculosis in all parts of the body are now being treated more or less successfully, according to the intelligence with which the remedy is being used, and according to the favorableness of the lesion for treatment.

My own experience consists of some half dozen cases which I have had under treatment for varying periods of time, only two of whom persisted long enough to gain a favorable result. With two exceptions my patients were all those in whom the genito-urinary tuberculosis was a condition complicating and of secondary importance to the disease of the pulmonary form. One of these exceptions was a case where the infection was located in the prostate and seminal vesicles and was secondary to a tuberculous testicle which had been previously removed. After two months' treatment during which time the patient made very satisfactory improvement he returned to his home in the east to carry out the treatment under his home physician, the result of which I have not heard. One of the other exceptions is now under treatment. While he has tuberculosis of the lungs, the lesion for which he was referred to me was particularly that of the prostate, bladder and kidney.

The two successful cases of tuberculosis of the genito-urinary tract which I wish to report are both of considerable interest. The first one was a case of tuberculosis of the kidney. The patient, a female, twenty-nine years of age, had suffered from a non-virulent type of tuberculosis of the lungs for eleven years. She had been aspirated for pleuritic effusion nine times and when first seen by me was in the

second stage (Turban) of pulmonary tuberculosis. For three and a half years she had suffered from albuminuria and hematuria and had been treated for nephritis. While under treatment she carried large quantities of albumen, occasionally passed bloody urine and on several different occasions passed renal calculi. Microscopical examination of the urine showed blood cells and tubercle bacilli. Unfortunately a catheterized specimen of urine was not examined so there might be a question in the minds of some as to the correctness of the diagnosis. Fortunately, for any who may have such doubts, on two different occasions I provoked a severe reaction in the kidney, accompanied by renal colic and hematuria by injections of tuberculin as will be explained later. When first put upon treatment, I accepted the diagnosis of nephritis which had been previously made, but soon noticed that the amount of albumen was influenced by the tuberculin. By watching the amount of albumen I soon learned that it could be taken as an indication of the kidney reaction and as a guide for dosage. Under a tuberculin made from human tubercle bacilli the pulmonary and renal condition both improved, in fact the pulmonary condition entirely healed out and the kidney at times seemed to be free from trouble as far as could be judged. Every now and then, however, symptoms on its part would manifest themselves. Returning from a trip to Europe, where I had seen some excellent results obtained by means of tuberculin made from bovine bacilli, I thought I would try it on this case and it was then that I secured the reactions mentioned above. Fortunately, I was very cautious in my dosage. My first dose was 1-100,000 mg. of P. T. O. (Spengler). This was followed by severe colicky pains and hematuria and accompanied by a marked rise of temperature. This was a great surprise to me, and especially so because the patient had been taking large doses of Watery Extract (von Ruck) without any signs of reaction. I was not convinced that it was not a coincidence, and after waiting for some little time, I again repeated the same dose with the same prompt recurrence of symptoms. After a few days the condition cleared up and no bad results followed. The patient was again put on Watery Extract and after treatment which lasted over a period of about two years, during which time the treatment was carried on with intervals of a few months of injections and a few months of rest alternating, the patient made an apparent recovery. She has been free from symptoms now for more than a year. The lesson learned here regarding bovine tuberculin has been borne out in other cases. My limited experience seems to indicate that genito-urinary tuberculosis is best treated by the tuberculins of human origin.

The other successful case is one of tuberculosis of the ovary, and as far as I have been able to find out, it is the first case of tuberculosis of the ovary treated successfully by the employment of tuberculin. This case was reported by Browning (Southern California Practitioner) and mentioned

by me in a former paper (New York Medical Journal, Jan. 11, 1908). The patient was a highly nervous woman of twenty-four years. She had been operated upon by Dr. J. B. Eagleson of Seattle two years previously, at which time her right ovary was removed. Upon examination this proved to be tuberculous. The surgeon gave it as his opinion at this time that the other ovary would have to be removed for it also showed signs of infection, but owing to a promise made to the patient before the operation he was not free to do as he thought best, so the one was left. The patient left the hospital and returned to her home, but after experiencing considerable distress she returned to the surgeon who, upon examination, found the organ in such a condition that he advised immediate removal, to which the patient consented. After thinking it over, she came to the conclusion that any treatment that was good for tuberculosis of the lungs should be good for tuberculosis of the ovary, and instead of going to the hospital for operation she came to the Pottenger Sanatorium at Monrovia and insisted that we admit her. Fearing that we would not take her if we knew of her running away from the surgeon, she did not tell us this until long after. Having had no experience in treating tuberculosis of the ovary we were loth to admit her and told her that we could not promise her anything except that we would try. She insisted that that was all she wanted. Examination showed the ovary to be very much enlarged and very tender. There was also a slight lesion in the lungs. The patient was admitted to the sanatorium, put upon the ordinary hygienic regime and given tuberculin. After one year's treatment the pulmonary condition was apparently cured and the ovary had reduced in size, all tenderness had disappeared, and it gave the impression of being healed. Owing to the inflammatory condition present, adhesions formed which at first gave her some trouble. About six months after leaving the institution these became so aggravated that she visited a physician who gave it as his opinion that the disease had again become active and that she would be compelled to be operated. She came back to the institution again for examination and the same condition was found as existed on leaving. She was again given large doses of tuberculin without reaction, so we felt sure that no infection remained. We were warranted in this opinion not only because of the general tendency for tuberculin to cause a reaction where tuberculosis exists but also because in this particular case pain in the ovary was always set up when large doses of tuberculin were given as long as the infection remained active. It is now more than two years since she was discharged and she still remains well, so we are warranted in calling this a cure.

These two cases are very interesting and instructive, and while the number is too small to warrant any conclusions, yet they point the way, and indicate that tuberculosis of the genito-urinary tract should receive the same treatment as tuberculosis of other organs.

THE RADICAL TREATMENT OF GENITO-URINARY TUBERCULOSIS.*

By GEORGE S. WHITESIDE, M. D., Portland, Oregon.

The very beginning of tubercle in the genital or urinary tract is not altogether a matter of speculation. The bacilli may find entrance either along the natural passages or the infection may be an haematogenous one.

Both in the epididymis and in the testicle tuberculosis often begins with a symptomatic hydrocele.¹ The infection starts in the epithelium and in the walls of the seminal ducts as small gray-white nodules. These coalesce and form large cheesy deposits which often break down and become abscesses. Later these find vent through the skin of the scrotum. In the testicle itself the miliary form is the rule. Large nodules often develop from the coalescence of small ones, but abscess forms only at a very much later stage. Simmond's² describes a very early form of seminal vesicle tuberculosis. He reports 15 cases in which tubercle bacilli were found in the spermatic fluid. Apparently these cases showed a very early catarrhal infection of the vesical mucous membrane without other evidences of disease. Only a very careful search with the microscope can reveal such cases. Symptoms are slight and not noticeable. The patient usually does not apply for examination until some definite symptoms call his attention to his condition. Consequently, the infection has obtained a firm hold before he comes to the surgeon.

Teutschlaender³ reports 57 cases of Uro-Genital Tuberculosis in which 31 had involvement of the seminal vesicles. He also collects from literature 232 cases in which 119 had seminal vesicle involvement. Of his 31 cases, 11 were on one side and 20 were bilateral infections. Only 1 was diagnosed clinically. The other 30 were found at autopsy. In 2 of these later there had been spontaneous cure.

These statistics show us that the disease is usually not confined to only one part of the uro-genital tract and also that only 3% of existing cases are sufficiently advanced to be detected by any usual examination of the patient. It also gives the significant fact that only 6% of all cases recover spontaneously. In fact, although the primary lesions are oftenest found in the epididymis, it is not long before the testicle, vas deferens, seminal vesicles, prostate and even the bladder and urethra become involved. From the bladder it is an easy step to the kidney. Sometimes a primary haematogenous infection begins in the kidney and descends along the urinary passages until the entire uro-genital tract is involved.

When one considers the usually fatal outcome of genito-urinary tubercle and the pitiable picture presented by one in the later stages I think the following case a remarkable success:

Mr. H. K., 38 years old, single, consulted me in October, 1902, and gave the following history:

In 1893 Dr. Willy Mayer did left orchidectomy for tubercle of the epididymis. In 1894 Dr. Bolton Bangs did combined suprapubic and perineal

curettage of the bladder for tubercle. Since then he has spent two years in Arizona and six years in New York. Has gained 10 pounds in weight. Feels well. Has had no symptoms for seven years. Wants to get married and so consults me. Cystoscopy shows a perfectly normal bladder except for scar tissue at the fundus where the suprapubic wound was and some small scars where ulcers were curetted. Physical examination of chest, abdomen, the other testicle and the prostate discovers no disease. Urine examination negative. I believe this man to be entirely well.

In order to show the reverse picture, I will recite the case of a man who came to me about the same time.

In 1903 Mr. X. consulted me. He said he was 45 years old but his general appearance was that of a much older man. Hair, although abundant, very gray. Skin showing an extreme anaemia. He walks stooping and aiding himself with a cane. Gait slow, shuffling, feeble. Dyspnoea on very slight exertion. Physical examination shows with both epididymes, cords, seminal vesicles and the prostate infiltrated with nodules. On one side of the scrotum is likely a discharging sinus, evidently connecting with the epididymis or the tunic. Bladder contracted (capacity only 40 c.c.). Urination very frequent. Great tenesmus after emptying bladder. Urine about one-half composed of foul-smelling, ropy mucus and pus. Many tubercle bacilli present. Chest examination shows dullness, rales and increased sounds at both apices, lower behind than in front. Abdominal palpation discovers enlargement of both kidneys.

In fact here we have a young man of forty-five in the last stages of widespread tubercular disease, which, so he told me, began as a small nodule in the right epididymis four years before. He had been under the care of a physician who gave him cod liver oil, fresh air, extra diet, etc., etc., but in spite of such measures his disease progressed constantly.

[Contrasting these two cases one is forced to see the evident triumph of surgical treatment in the first case and the evident failure of general hygienic measures in the other.] If, as stated above, only 6% of all cases, however slight the infection, recover spontaneously, this is what common sense might predict.

If, now in addition to the removal of all possible diseased tissue, nature is aided to cure after her own fashion by the administration of tuberculin, our results should show further improvement. This theory works out well in practice. I have operated upon a number of individuals and followed it up with tuberculin treatment afterward with very gratifying results.

After studying 50 cases, Berger⁴ comes to the conclusion that if the conservative treatment does not seem to give good results in a short time, more radical measures should be undertaken. His patients were between 10 and 80 years of age. Tuberculous family history in 7 patients. Infection of other organs in 12 patients. The tuberculosis followed gonorrheal infection in 4 cases, in 9 its be-

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

ginning was referred to an injury received 18 days to 11 months before evidence of the tubercle was apparent.

In regard to resection of the epididymis for tuberculosis. Bogoljuboff-Kasau⁵ reports 166 cases from literature and 12 cases of his own. Reports healing of the tubercular process in the testicle after removal of the epididymis as a rule in all cases. In 22 cases of infection of both the testicle and epididymis where partial resection of the epididymis was practiced, healing resulted in 15. The disease appeared on the other side in 137 within an average time of 14 months. In 42 cases which were complicated by tuberculosis of the prostate and seminal vesicles, he resected the epididymis in 19, 15 of which were one sided and 4 double sided. He claims that cure of the tuberculosis of all organs resulted in 19 cases, but does not state how long after operation he was able to follow these cases.

Fuller⁶ has performed seminal vesiculotomy for chronic gonorrheal infection of the seminal vesicles. He believes tuberculosis a contra-indication for operation. His statistics of the operation⁷ showed 33 cases. No deaths.

From autopsy reports and also from my own clinical experience, I believe involvement of the entire genital tract to be much more frequent than is generally supposed to be the case. I, therefore, believe the former operation of resection of the epididymis entirely inadequate, as indeed the statistics above quoted would indicate. I also believe Fuller is right in advising against seminal vesiculotomy for seminal vesicle tubercular disease unless at the same time other infected organs are also removed.

I have, therefore, latterly practiced a very radical method of operation so as to extirpate as much tuberculous tissue as is practicable before placing the patient upon tuberculin treatment. I will report only my earlier cases to illustrate with what success the procedure had been attended up to the present time.

Y. A., 34 years old, single, was sent to me Feb. 15th, 1908. For two years he had suffered from frequent urination and gradually increasing pain in the bladder. Two months ago the right epididymis began to swell. Not painful. Now the testicle is involved in a large indurated mass the size of a goose egg. On the other side the scrotal integument is slightly reddened and a feeling of deep fluctuation is evident. Rectal examination shows the cord hard and as large as one's finger. Prostate contains nodules on the right and right seminal vesicle is indurated. Bladder capacity only 30 c.c. Tubercle bacilli in the urine. Dr. Yenney pronounced the lungs sound. Operation Feb. 24th at St. Vincent's Hospital. The right testicle removed through an incision extending into the inguinal region in the usual way. The cord was then freed from the surrounding tissues as far into the inguinal canal as possible, there it was clamped and cut off. Then the patient was placed in the lithotomy position and a semi-lunar incision, with its convexity anteriorly, was made extending between the tuber ischii. After

dividing the central tendon of the perineum the rectum was pushed backward and by blunt dissection following the plane of the recto-vesical fascia, a deep pyramidal-shaped wound was made which gave easy access to the prostate and seminal vesicles. By pushing the finger up to the apex of this deep wound and by pushing downward on the forceps, which had been previously clamped to the cut end of the vas deferens in the inguinal canal, it was possible to push this clamp through into the perineal wound carrying the cord with it. By removing this anterior clamp and replacing it with another through the perineal wound, it was found possible to remove the entire spermatic cord with the seminal vesicle on the right side and the right lateral lobe of the prostate. It is important not to perform the prostatectomy first. Having thus excised all the tuberculous tissue which it was possible to reach, the anterior wound was closed without drainage and the perineal one was closed, leaving a small amount of gauze packing for drainage. The time of operation was almost three hours, owing chiefly to the difficulties attendant upon the removal of the seminal vesicles at the bottom of a deep wound. The patient was returned to bed in good condition, the gauze removed after 24 hours from the perineal wound. Convalescence was uninterrupted, the patient being up and about on the 10th day. On March 17th the patient was in good condition but complained that he still suffered from vesical tenesmus. He was given hypodermically 1-10,000 of a milligram of Koch's O. T. Serial dilution No. 1 as prepared by Mulford. The day after this injection the vesical symptoms were very much better. Frequency was less and pain relieved. On the 21st 1-5000 of a milligram was given with the corresponding good result. This was repeated on the 27th and 30th. By this time urination was much less frequent and the pain had entirely disappeared. The patient was then discharged from the hospital and went to Huntington, Oregon. There he came under the care of Dr. Spencer, who gave him two injections in the month of April, dosage not stated. In May, '08, the patient wrote to me saying that he felt well, had gained weight and was working in a sheep camp not far from Huntington, Oregon. Since he had not felt well enough to do any work for two years, the result was very gratifying.

In March, 1908, A. D., 28, single, consulted me and related the following history: August, 1907, contracted a gonorrhea. Treated by a doctor in Lewiston, Idaho. The discharge stopped in 6 weeks. In Jan., 1908, received a blow on the testicle. To this injury he refers the swelling of epididymis. Examination shows well developed and nourished man. Lungs, heart and abdomen negative. Right epididymis and testicle involved in a tumor almost the size of one's fist. Over the posterior aspect of this tumor the skin is reddened and a fluctuating spot toward the center of the hyperaemia area shows pus very near the surface. The spermatic cord, seminal vesicle and prostate involved on the right. Symptoms of bladder involvement very slight. No cystoscopic examination.

Urine, acid. Not much sediment. Small amount of pus. Tubercle bacilli not found. Operation March 12th, 1908. Technic similar to that described for last case. However, in this man the perineal part of the operation was much more difficult because his pelvic outlet was very narrow and the wound between the bladder and the rectum very deep. Also in this case venous hemorrhage was troublesome. After removal of the testicle with the cord and after removal of the strictures at the base of the bladder, it was found necessary to pack the perineal wound with gauze to stop the oozing. The tumor, after removal, was cut and the epididymis found to be merely a shell of thickened tissue forming the walls of an abscess. Other smaller abscesses were scattered through the tumor and in the seminal vesicle and portion of prostate removed. Time of operation three hours. Patient returned to bed in good condition; 48 hours later the gauze packing was removed from the perineal wound. The next day it was evident that injury, either at time of operation or from pressure of the gauze packing, had caused a fistula into the rectum. April 20th, five weeks after operation, patient left the hospital but the fistula in ano remained patent. April 10th the first tuberculin injection of 1-10,000 milligram. Koch's O. T. (Mulford) serial dilution No. 1 given. Patient not seen between May 1st and May 20th. Two injections given in May on the 20th and 27th. The last injection 1-5000 milligram tuberculin was given. This dose caused a rise of temperature and the usual signs of overdose. Consequently, I thought best to omit further injections until the fever had subsided. June 11th. The fistula in ano not having healed at all, the patient was given ether and the fistula cut through the sphincter into the rectum. July 30th. The wound of this second operation almost but not quite healed. Aug. 10th tuberculin injections resumed. 1-8000 milligram same solution given. Aug. 20th same. Sept. 1st 1-5000 milligram same. Note on this date is that the patient had gained 10 lbs. in weight, fistula entirely healed, feels strong, and well. Is doing heavy, laboring work.

Oct. 5th has gained more weight. Same dose, same solution given without reaction or untoward result. Feels perfectly well. All demonstrable evidence of disease has disappeared.

March, '09. Examination shows no evidence of recurrence.

I believe these two cases of genito-urinary tubercle are well, or nearly so. Time alone can decide whether recurrence will follow. When we contrast the result after this very radical operation, and the administration of tuberculin, with the result of any equally advanced case treated with medicine or general hygienic measures, the difference in outcome is striking. On the one hand the patients have regained health and are well, on the other we so often see a broken down young man, suffering severely and awaiting death. The result is no better than in the first case related, which was operated by Dr. Bangs of New York, but I believe that was an exceptional case. However, it was

this case that suggested to me that the very radical removal of all tuberculous tissue is advisable in order to give the patient a chance to overcome such infection as necessarily remains.

It is possible that tuberculin injections might suffice without preparatory operation, especially in the early cases. Indeed, in early cases I should advise trying it first but unless prompt improvement results more radical measures should be decided upon. These cases had advanced to abscess and it does not seem reasonable to expect the patient's organism to overcome such an infection by immunization methods alone.

The operation itself is a formidable and difficult one, but most of these sufferers are men otherwise sound and between 25 and 45 years of age. As yet I have had no fatal or even alarming results. I have operated, in all, twelve cases but the later ones are too recent to report at this time.

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Discussion.

Dr. G. H. Evans, San Francisco:

In the number of papers presented so many points have been brought out that it is impossible to cover very much ground in the small amount of time allotted for discussion. I will endeavor to merely call attention to, or emphasize, one or two points which have not been brought out very clearly. First of all, the question of the radical treatment of bladder tuberculosis. It seems to me that we are in danger of losing sight of the fact that bladder tuberculosis is usually a descending process hematogenous in origin. If this is the case, then it seems to me from analogy we must recognize the fact that in order to cure a bladder tuberculosis, if the primary lesion can first be determined and removed, we have in such procedure the most logical means of a cure. I say this not giving up one iota of my enthusiasm for tuberculin therapy. The results achieved by surgeons where the focus is confined to one kidney will substantiate this statement. It is a fact, however, that the vast majority of bladder tuberculosis cases are cases where we cannot isolate and determine the primary focus, or where more than one kidney is involved, and it is here where we have a descending process, where both kidneys are involved as well, that our hope lies in the administration of tuberculin along with hygienic procedures. I do not believe that any surgical procedure applied to the bladder itself can be expected to be productive of anything but palliative measures. Dr. Pottenger has given us a comprehensive view of the theory of tuberculin immunity. He has done it in a way that seems to me can make it clear to any one the way tuberculins act. I am sorry, however, that Dr. Pottenger did not go a little further into the question of tuberculin dosage. It is here that the great danger lies. It is here that too many failures are recorded and even to-day it is here that tuberculin is being discredited because of the lack of thought and care taken in the matter of dosage, time of administra-

tion and proper selection of the tuberculin. I have seen harm derived from too large doses of tuberculin. I believe it is a safe rule in applying tuberculin therapy in diseases of the urinary system to establish a small maximum dosage and never under any circumstances exceed the amount. I believe that if Prof. Wright's work has done any good at all it has been because of the fact that he has shown the value of a maximum dosage that is far below the minimum amount used previously.

Dr. A. B. Grosse, San Francisco: I am in accord with the principles laid down by Dr. McConnell with one exception, and that is that in cases of tuberculosis of the kidney with a descending infection and a beginning bladder tuberculosis, I maintain that the kidney should be immediately removed and the bladder symptoms will very quickly subside. As to the use of the tuberculins, I have not had sufficient results to cite anything. The question of vaccines in the treatment of urinary diseases is of tremendous interest. I have taken this occasion to rise immediately after Dr. Reinhardt in order to give you the other side of the question. My work in vaccines has been done with the assistance of Dr. Ryfkogel, and we have been very careful in their preparations, but in spite of the care taken we have had some of our vaccines fail us. Our vaccines sometimes become innocuous in a very brief time and the patients will then not improve under them. The mental effect cannot be taken into consideration. The patients do yield frequently to the stock vaccines although by no means as readily as to the fresh autogenous vaccines. With gonorrhoeal infections my experience has been practically only with the stock vaccines. In the treatment of acute gonorrhoea I find that the doses must be tremendously small, just approaching a slight reaction. In mild or chronic cases a larger dose can be given. Another thing, the local treatment of the gonorrhoea must cause an inflammatory condition, that is, a flow of blood to the part rich in opsonins. For instance, in gonorrhoeal prostatic trouble massage will bring blood, without the massage we will get no reaction and no results. I have had some of the most wonderful results in the use of the streptococcus vaccines, particularly in the bladder and urethral cases. One case, a man of 80 years of age, had an infected bladder and went from bad to worse. I made a culture and obtained a pure culture of colon bacillus. I then gave him the vaccine treatment and stopped all internal medication. The man became perfectly normal under this treatment. About the middle of December he became worse again and the vaccines did not do any good. In January I made cultures and found streptococcus besides the coli infection. The man was looking very badly and urinating about every 15 minutes, and that evening after injection of streptococci vaccine, he did not urinate for five hours.

Dr. J. J. Hogan, Vallejo, Calif.: I have had very little experience with the treatment of urinary tuberculosis with vaccines, but going back for a period of two years I have had experience with other infections of the urinary tract, and think that there is one point to be brought out, and that is the question of accurate diagnosis. For the past two years I have stained a centrifuged specimen of every urine coming to me, and have made my diagnosis with the help of this method, where otherwise the cause of the trouble would have been overlooked. Patients coming in with a diagnosis of acute nephritis have turned out in many instances to be infections of different types. Another point to be made is the dosage and I think that at the present time we are only on the threshold of this work. On the 17th of last month I took a blood culture of a case of phlebitis which had been running a clinical typhoid for a month. He had been running a temperature

with a leucocytosis and the man was not doing well, the temperature varying from 102 to 104. A pure culture of staphylococcus aureus was obtained. An autogenous vaccine was made which contained 300 million to the c.c. and the directions were that 1/3 c.c. was to be given. By mistake his attendant gave 1/3 of the whole amount of vaccine sent, which contained 1,500,000,000 or fifteen times the dose. The temperature dropped within a few hours and remained subnormal for 36 hours with general improvement. Within a few days they gave him another dose of 150,000,000, and on the following day another dose, and the temperature dropped and did not rise again. This case demonstrates a point that is borne out, by my experience, that large doses of the staphylococcus must be given in some cases in order to get results.

Dr. R. L. Rigdon, San Francisco: If we are not on our guard we will find ourselves growing into the habit of treating these cases of tuberculosis with vaccines simply because it is the up-to-date thing to do, and then, too, it is so easy to give a hypodermic injection, and these poor patients are so eager to grasp at any straw that may point toward the road to recovery. It is not at all sufficient that a diagnosis of urinary tuberculosis be made but the definite localization of the lesion or lesions must be insisted upon, and if the kidneys are involved the functional capacity of each must be determined. Not seldom both kidneys will be found the seat of pathologic changes, but the capacity of each may be functionally sufficient. Manifestly surgical interference with a nephrectomy in view could not be expected under such circumstances. But, perhaps while both kidneys are involved, one organ has been almost wholly destroyed and is functionally a negligible quantity while the sister organ may be only moderately invaded by the tubercular process and have ample functional capacity. To leave the badly crippled kidney in place and permit it to continue by its poisonous secretions or products to overload the system with toxins and thus put double work of elimination upon the already suffering sister organ would be bad practice. Common sense and experience alike counsel the removal of the incapacitated kidney by surgical means. We must not permit the promising and alluring field of vaccine therapeutics to interfere with the thoroughness with which we investigate our cases.

Dr. G. S. Whiteside, Portland, closing discussion: It is extremely important in operating that the tuberculous material should not be broken but removed as rapidly as possible from the wound, and it is important also that the vas deferens should be removed as completely as possible. If these things are done the result will be as in the case I reported, where, after the operation, the man received tuberculin treatment for a time and within two months after the operation he was in eastern Oregon riding on a sheep ranch. For two years before he had been incapacitated for business life and two months after operation and after a short course of treatment with tuberculin, he was able to ride horses on a sheep ranch.

Dr. F. M. Pottenger, Monrovia, closing discussion: With regard to the removal of the diseased kidney I will say that I do not think one kidney should be removed without a catheterized specimen from the other kidney. Tuberculosis of the kidney is not always active. We might have a left kidney involved and have the right kidney show nothing upon catheterization at the same time, and then the next week we might get the tubercle bacilli from both sides. This is characteristic of tuberculosis. The vaccine therapy for tuberculosis, in the hands of a careful man, will bring good results—if it is used intelligently the results will be good.

SURGICAL SHOCK.*

By DAVID POWELL, M. D., Marysville.

"Crushing injuries of the extremities caused by railway accidents and machinery, furnish the largest percentage of grave cases of shock." (Senn.) Surgical shock is often the most important symptom of general injury involving the nervous system and vital organs of the body, and also parts not essential to life. Indeed, in all serious railway injuries, the most urgent condition that demands attention, after the arrest of hemorrhage and the relief of pain, is shock—"a sudden depression," as Bailey defines it, "of the functional activity of the general nervous system."

Its pathology is very imperfectly understood, and regarding it the most diverse views have been held by those who have given the subject special study. The importance of shock was first recognized by English surgeons many years ago, and little has been added to our knowledge of the subject since the writings of Pirogoff, Jordan, Savory and other early writers. Travers, the senior surgeon of St. Thomas Hospital in 1826, states "that teachers and writers at that time seem to have contented themselves with the bare statement of its observation, either from the impression that, being equivalent to immediate unavoidable death or due to an idiosyncrasy, moral or physical, the further consideration of the subject in a practical view was unavailing."

The literature of the subject since that time has been considerable, yet few writers attempt to define the cause and nature of shock. Its pathology is usually passed over briefly, and the term has been employed indiscriminately to describe "all cases of sudden death following injuries without hemorrhage, to non-vital parts." Senn, in one of his lectures delivered in this city a few years ago, said that the "experimental work done so far, and the clinical observations made afford us but an incomplete insight into the nature and etiology of traumatic shock."

With the purpose then of eliciting a discussion of the subject, rather than with any intention of attempting to present any facts or conclusions not already familiar to you, I have ventured briefly to call your attention to a condition of almost daily observation among railway surgeons, as a constant accompaniment of all grave injuries, and not infrequently following traumatism of a trifling nature.

The importance of the subject from a professional and medico-legal aspect is emphasized by the well-known fact that shock often appears to be the sole determining cause of death, as illustrated in the following case:

Sept. 30, 1905, L. A. S., 14 years of age, was indulging in the hazardous pastime common among boys of his age, of jumping on and off freight cars while switching in the railroad yards at Marysville. He fell under the wheels and sustained a compound, comminuted fracture of the left leg. He was carried into a nearby house, and I saw him within a short time. He was conscious, free from pain, and had lost but little blood. Had him removed to his home a few blocks distant. While he

was fully conscious and able to relate the details of the accident, the patient was depressed and apathetic and presented all the symptoms of severe shock. The face was pale, the skin was moist and cold, the pulse soft, rapid and feeble, respiration shallow and temperature subnormal. Under administration of stimulants and warm applications he revived and immediate preparations were made for operation.

Under ether anesthesia a thigh amputation was made and the patient was removed without unnecessary delay to a warm bed in fairly good condition. Upon recovering from the anesthetic, however, he again showed symptoms of collapse, and notwithstanding every effort was made to revive him, he died three hours later from shock.

The two principal theories as to the nature of the shock are based on functional disturbances in the vascular and nervous systems respectively. To which shall we attribute the prime etiological factor in the sudden and unexpected ending of this unfortunate young lad's life? With health, buoyancy of youth, and absence of all debilitating influences in his favor, even the crushing of a limb, followed by a rapid and carefully performed amputation would scarcely presage a fatal termination.

In the absence of hemorrhage it seems the consensus of opinion that shock can be explained only by assuming a permanent or temporary paralysis of a reflex origin-centering, according to Groeningean, who has made one of the most thorough and complete studies of the action of the nervous system in shock, on the splanchnic nerve. His experiments are supported by Bizold and Bever, who found that section of this nerve was followed by accumulating blood in the paralyzed abdominal vessels, especially the veins, while the vessels not damaged by the nerve section were found to contain a comparatively small quantity of blood. So also the functions of the cord may be paralyzed or reduced to a minimum, and among these functions must be included not only sensation and motion, but also those which preside over the heart, the vasomotor nerves, and respiration. The brain apparently does not participate, the mind is clear and it is rare that stupor, coma or delirium is present.

Case II. About three months ago a young tramp, 19 years of age, while "riding the brakes" of a fast-moving freight train, fell under the wheels and his right leg was crushed from several inches above the knee to the ankle. He was brought to the station at Marysville, where I saw him within a few minutes after the injury was received. His companions, with unusual presence of mind, had tied a handkerchief tightly about the limb and the hemorrhage had been practically nil. The patient presented all the characteristic features of severe shock. He lay on a cot at the station indifferent, apathetic, listless and apparently did not realize the gravity of his condition. Mentality clear but sluggish. Responded to questions slowly but rationally. Surface of the body cold and bathed with a clammy perspiration. Pulse almost imperceptible at the wrist, weak, threadlike and irregular. Face pale, lips bloodless, fingers and nails blue. Eyes sunken, staring and expressionless, pupils dilated but responded sluggishly to light. Temperature by rectum 96° F. Respiration shallow and sighing. Did not complain of any sensation of pain except when the limb was moved or disturbed. Gave him morphin 1/6 grain and a 1/30 of a grain of strychnin

* Read before the Pacific Association of Railway Surgeons, August, 1909.

hypodermically; wrapped him warmly in blankets, and had him removed to County Hospital. Saw him two hours later with county physician, Dr. Stone. Condition somewhat improved; body warm, color better, pulse stronger but still weak and rapid. Ordered digitaline hypodermically, two ounces of brandy by rectum, and quart of warm salt solution in subcutaneous tissue of abdominal walls.

As soon as necessary preparations were completed, the patient was anesthetized and the limb amputated at middle third of thigh. Although there was no loss of blood during the operation, which, with the subsequent dressing occupied but a few minutes, the patient, soon after being removed to the ward again, presented all the symptoms of grave shock. Pulse almost imperceptible. Face blanched, respirations shallow and irregular. Gave nitroglycerin hypodermically; brandy and hot salt solution by rectum and subcutaneously; oxygen and nitrite of amyl by inhalation; but there was no improvement, and in less than an hour after he was removed from the operating table he was dead.

Would the result have been different if the operation had been delayed and more time given for a fuller recovery from the shock of the injury? I am inclined to believe it would. But the prognosis of shock is at all times doubtful and uncertain. If under appropriate treatment reaction does not take place within a few hours a fatal termination may be expected, and in the meantime all surgical operations requiring anesthesia are contraindicated.

The moment when to operate in a case of shock is a point in which the practice of many experienced surgeons differs. Nevertheless, the consensus of opinion at the present time is opposed to operations that can be postponed until the patient has rallied from the immediate effect of the injury.

While the treatment of shock is largely symptomatic, fortunately much can be done that may enable the patient to acquire sufficient strength to carry him safely through the ordeal of an operation. First in importance is rest in a recumbent position with the foot of the bed elevated so that the weak heart may be able to nourish the exhausted vital centers with blood. Next is the application of dry heat to the body and extremities, and the administration of stimulants; of the latter strong black coffee and brandy are valuable. Hot normal salt solution by rectum, and intravenous infusion or hypodermoclasia of same should be employed. Electric stimulation, the inhalation of oxygen and nitrite of amyl are rational remedies, especially when the respiratory function is threatened.

Of drugs, digitalin hypodermically and opium in small doses may be given first place. Eserin has been recommended as of special value in shock, and the well-known therapeutic value of strychnin and nitroglycerin as agents for a failing heart should not be overlooked.

Finally, what can be done toward the prophylactic treatment of shock? Free stimulation with alcoholics, strychnin and morphin in appropriate doses prior to the administration of the anesthetic, are of value in minimizing the danger of anesthesia, and the shock incident to a serious operation.

Again many details which on ordinary occasions seem important should be sacrificed to the more important element of time. Cheever has called atten-

tion to the relation of the operative procedures of modern surgery to shock, and raises a warning voice against many of its attendant dangers. "Operations under anesthesia often needlessly prolonged are exhausting, and elaborate modern dressings are apt to be tedious and chilling. Undue haste involving lack of thoroughness is, of course, to be deprecated, but what in the old methods, before the day of anesthetics was a matter of moments is now too often one of hours."

Inasmuch then as many of the features of aseptic surgery have been simplified may we not, sometimes as a life-saving measure, aspire to add to modern skill the speed, in operative procedures, of a former generation?

Discussion.

Dr. O. D. Hamlin, Oakland: The question is one in which I am considerably interested, and I so suppose one in which every man who is doing surgery is interested. As Dr. Powell has told us, the pathology of surgical shock is somewhat unknown. Dr. Crile of Cleveland has done more in his laboratory to find out just what the pathology is than any other man. I have had the advantage of seeing some of his work. The question before us in emergency work when a case is brought in injured, such as the case which Dr. Powell reported, where both or one limb is crushed, is that patient suffering from shock or from hemorrhage. In the laboratory work these things can be defined, but as to whether that patient is suffering from loss of blood or shock or concussion is very important. One of the quickest means is not alone by blood pressure but by the specific gravity of the blood which can be quickly taken. The ordinary instrument used in the examination of urine, if at hand, is a great help. The specific gravity can be taken by using a solution of chloroform and benzine. Put this in until you get the specific gravity to 1059, which is the normal specific gravity of the blood. By putting a drop of blood into this solution and then taking the specific gravity and then adding the benzine or chloroform until you get the specific gravity with the drop of blood suspended in the middle will give you a pretty good idea as to whether it is a question of shock or hemorrhage. If it is hemorrhage you have a decreased specific gravity, if shock the specific gravity may be normal or increased. This also holds good in concussion. Dr. Powell mentioned the use of digitalin in shock. I think this under some circumstances is a very good drug, but the ordinary use of stimulants, such as strychnin, digitalin, nitroglycerin, etc., in shock should be usually condemned. I think digitalin is the best of the lot. Dr. Crile has proved that strychnin and nitroglycerin increase the shock rather than decrease it; his experiments show that the pathology of shock is due to the vasomotor disturbance or the relaxation of the vasomotor contraction. He has proved that only one drug has brought the blood pressure up immediately, and that is one of the means to determine whether the patient is improving by the use of the blood pressure instrument. Adrenalin is undoubtedly the drug to use in these conditions to bring up the blood pressure. The physiologic action of adrenalin is very short lived. After thirty minims of adrenalin hypodermically you will find that the blood pressure

risers from ten to thirty points. Crile, in his late book just printed a short time ago, gives a series of experiments on shock and concussion where the condition has been increased by strychnin and nitroglycerin. Nitroglycerin undoubtedly adds to the condition which you already have. The nitroglycerin takes up the slack of the circulation and forces the blood out of the great splanchnic vessels. I think that the foot of the bed should be raised as the pathology shows an anemia of the central parts which need nourishment, raising the foot of the bed gives these parts as much nourishment as possible until the patient is over the period of shock. If the shock is due to hemorrhage a saline solution is undoubtedly ideal treatment. If on the contrary there is shock without hemorrhage the saline is still indicated but limited, because the addition of a large amount of fluid in the blood vessels with a very weak acting heart which has no central nerve supply, only makes the shock greater, and too much saline can be given in cases of shock although a limited amount with the addition of adrenalin usually shows improvement in the condition. That improvement may not last long. In severe cases where death occurs there is improvement for a short time, but the question of over-stimulating a weak heart during shock is very important, and some of the stimulants used as a routine ought to be condemned. Surgical shock has been classified under four different headings: that due to vasomotor disturbance without hemorrhage, that due to hemorrhage or collapse, and that due to toxic infection from the anesthesia after operation. And again you have the surgical shock following mental disturbance. We all know that some people after a very minor operation suffer severe shock and that of course is due to mental shock. That type of patient can often be diagnosed before operation. I think that alcohol has been proven to be a most successful thing to be used if necessary before operation, because it does certainly relieve the mental condition. The shock due to a mental condition is not usually severe and does not terminate seriously or give us trouble and worry. Shock due to hemorrhage and vasomotor disturbance is very serious. Regarding the question of amputations in severe cases where both legs are crushed should be done immediately or not, I think it is a question of very great importance. In my experience I have found that the cases which I have held over for eight or ten or twenty-four hours, have had a second shock, which seemed to me to be greater than the first, and I have lost my patient. I have recently, especially in amputation of the leg, which is more common, injected cocaine into the sciatic nerve, giving very little anesthesia, and at times I have used the lumbar anesthesia. Otherwise I have used injections of cocaine of 1% or sometimes $\frac{1}{2}\%$ solution of cocaine into the sciatic nerve, and I have found that applying the blood pressure instrument, the von Recklinghausen, is of some importance in cutting off the sciatic nerve. I think in leaving exposed surfaces we increase the shock. In burns, etc., large surfaces of nerve endings are exposed which produce this result. Amputation can be done in a very few minutes; it is not necessary to do the flap at that time. We can quickly saw off the bone, tie up the vessels and get our amputation over with. Then if we need a second amputation in a couple of weeks the patient is in good condition to do anything we like. The fine flaps can be done at a later date. Unless the patient is suffering too great shock it is of course better to wait a little while before amputating but the thing is to amputate the limb immediately because the second shock is greater than the first, and I think the reason is because you have to leave a large surface of nerve exposed all this time.

Dr. W. I. Terry, San Francisco: I differ with

regard to the use of adrenalin in cases of shock in so far as it is so transitory in its effect. A hypodermic will tide a patient over a minute or two minutes at most, then the adrenalin is oxidized. If your patient is about to die there is nothing quicker than adrenalin injected peripherally; if the patient has stopped breathing and the heart has stopped beating, we can resuscitate that patient by injecting adrenalin with normal salt solution into the brachial artery. The brachial artery carries this to the heart and starts it beating, but if this is not done within six minutes we cannot get any response, and if you have a complete anemia of the brain persisting for two minutes, although the patient may be revived and the heart continue to beat, the patient will be a decerebrate. Dr. Crile told me just a few months ago that he had revived two patients within six minutes after death who had lived 48 hours, but they were decerebrates. This of course applies to extreme cases. The ordinary case of shock that is met does not go to such an extremity. If the patient needs to be tidied over for a minute I believe in the use of adrenalin and follow that up either with salt solution, in case of shock due to hemorrhage, or camphorated oil, or caffeine in large doses, 2-4 grains, hypodermically. In addition, of course, posture, heat and very often anemia of the extremities by bandaging to keep the blood in the heart and the brain, are advisable. And if you have to keep up the stimulation digitalin or some form of digitalis is of value. I am glad Dr. Hamlin spoke of the danger of too much salt solution—you can certainly drown your patient with too much.

Dr. Henry Hildreth, Delano: This is a question which has occupied my attention for a good many years. I have had under my care a great many injuries. I find that in many excessive injuries we have a spasm of the stomach. I have noticed it for a good many years, but I do not know what causes it; it is a nervous spasm contracting the stomach walls until they are hard. I confess that I have seen several patients die without relaxation until that relaxation which accompanied the post mortem condition. On one occasion I had a patient whose both legs were crushed in a railroad wreck; there was no hemorrhage. My experience has shown that the railroad injuries do not bleed, the vessels being crushed. In this case which I mentioned the patient refused to respond to the means of treatment suggested by both the gentlemen who preceded me and the patient's friends. I concluded to try him once more before turning elsewhere for aid, and administered apomorphin. The stomach immediately softened up and the pulse came up, and I was able to take him to the hospital, where I had two expert surgeons remove his mutilated limbs. I have used apomorphin in this case with excellent effect. When you think a case is moribund it might be tried. Another point in operations during shock, I would avoid the use of the anesthesia altogether. My opinion is that the effect of the anesthetic is contributory to necropsy and not to recovery. What I have to state is merely suggestive, but I hope you will bear it in mind if you do not adopt the idea.

Dr. Robert W. Miller, Los Angeles: I am very glad to have heard this paper. There are perhaps very few conditions indeed in which we feel greater solicitude and in regard to which we realize that we have less definite knowledge as to what to do and what not to do. One speaker has called attention to a very important point in this connection, namely, that not all of these cases pronounced "shock" are shock pure and simple. Unless we give this subject study, we shall fail to recognize the real condition with which we are dealing and employ the proper treatment in due time. If the

depression be due almost wholly to the effect of the anesthetic, the therapy must be directed accordingly, and such agents as strychnia, nitroglycerin, and a reliable derivative of digitalis, should be employed. In doing work about the throat and the mastoid, I have seen a number of cases that have called my attention very forcibly to the importance of surgical shock. I quite agree with the speaker who referred to the avoidance of the use of such agents as nitroglycerin, alcohol and other vasodilators in cases of uncomplicated shock. Agents that act as stimulant to the respiratory and circulatory system in other conditions, do not necessarily act so in cases of shock. When we have had considerable depletion from hemorrhage, the use of heat, hot water per rectum, and normal salt solution endermically are of great value. Another agent which has not been mentioned is the faradic current. All who have had recourse to it have found that it very promptly supports a flagging heart. I am not speaking from personal experience with it in cases of shock, but it occurs to me as one of the things which we ought not to forget.

In regard to the use of suprarenal extracts in one form or another, it is unquestionably a very prompt and valuable agent, yet its effect is transitory, whether you use it for a local or constitutional effect. This must be constantly borne in mind, and if its influence on the cardio-vascular system is to be maintained, the administration must be promptly renewed as occasion requires.

Dr. David Powell, closing discussion: The time when to operate in a case of severe shock is a point, as I said in my paper, regarding which the practice of many experienced surgeons differs. Some years ago it was perhaps the rule to operate during shock, under the impression that patients are thereby spared the additional shock from which they would necessarily suffer as the result of the anesthetic and subsequent operation. At the present time, however, I believe the consensus of opinion, among those who have given this condition the most careful attention, is opposed to operations that can be postponed until the patient has rallied from the immediate effect of the injury. Much can be done during this time to tide him over the danger attendant upon the shock of the injury, and if he does not recover within a few hours then any serious operation would at best be hopeless.

In discussing the treatment of shock, some of the speakers have condemned the employment of strychnin. The experiments of Crile with the blood pressure in shock have been mentioned, and the inference drawn that strychnin is contraindicated. But this is true only in cases of shock complicated by hemorrhage, or serious lesions of vital organs. The well-known physiological action of this drug upon respiration, arterial pressure, etc., would at once suggest its usefulness in this condition, especially along with injections of warm saline solutions. Nitroglycerin, too, as a temporary stimulant to the flagging heart in uncomplicated shock, is often of signal benefit. The action of adrenalin is so transitory that it cannot be given much importance, unless possibly when continued for some period of time, together with intravenous or rectal saline infusions. Subcutaneous injections of sterilized camphorated oil and digitalin, and caffeine or strong black coffee, are valuable cardiac stimulants, and together with alcoholic stimulants, find a place in the treatment of traumatic shock. I believe the administration of ether or chloroform in the presence of severe shock is not devoid of danger, and deaths attributed to shock may not infrequently be due to the anesthesia. We should always bear in mind that it is a condition and not a disease that we are combating in the treatment of shock.

PRESIDENT'S ADDRESS AT THE SEVENTH SEMI-ANNUAL MEETING OF THE CENTRAL CALIFORNIA HEALTH OFFICERS' ASSOCIATION, OCTOBER, 1909.

By R. W. MUSGRAVE, M. D., Hanford.

It becomes my pleasant duty to extend to the members of the Central California Health Officers' Association, as well also the members of the San Joaquin Valley Medical Society, a very cordial greeting. I wish also to express to the Chamber of Commerce of this city, my appreciation of their hearty support and co-operation, for to them is due, in a great measure, the success of these meetings.

This meeting represents the Seventh Semi-Annual session of the Central California Health Officers' Association. From a mere handful, so to speak, of health officers, who held their first meeting in Fresno, this organization has steadily grown, until to-day, I am pleased to report, that it is a very active organization, embracing the representative city and county health officers of the fourteen (14) counties embraced within the territory known as Central California. This organization, is now so constituted, that by a proper direction of its efforts it will not only be a powerful adjunct to the State Board of Health, in the execution of the laws which have been framed for the public good, but as well be a means, through its duly appointed or elected city and county health officers, who are members of this organization, for the enforcement of many laws of great value to their communities.

It is impossible for me at this time, to present to you the many important and necessary topics relating to sanitation and public hygiene, that I would wish. There is one subject, however, of more than ordinary interest to me, to which I desire to call your attention, and which ought to receive your thoughtful consideration. I refer particularly to the "Dull, or so-called Backward School Child."

Child study, as you know, has now become so universal a topic, that it has reached the climax of a fad. Child culture has absorbed society to such an extent, now-a-days that I fear it is gradually losing its dignified scientific prestige. Some one has very wisely said that "what the child needs nowadays, is a little wholesome neglect. He is studied and observed, and cultivated, until he cannot take a long breath, and take it naturally."

This assertion, in a measure, I believe is true, but considering the child from a professional standpoint, and the relation we bear to it as a physician, this study, or so-called agitation, must be continued. I do not believe it is necessary to keep up this agitation with the medical profession. Where this is most needed, is with the parents, in order that they may fully understand what is being done for their child not only with the teachers, but with the physicians as well. What we need more than all else, and particularly so in our work as physicians, is better mothers. Mothers with intelligence; who, by their influence, individually and collectively, can as-

sist us in correcting the many existing wrongs, that in the future will materially affect the welfare of the nation. Until we gain this intelligence, the progress in this character of work will, of necessity, be slow.

Education in this country, is compulsory for all children between the ages of six and fourteen. In some of the states, I believe the duration of school-life is longer. If a child in this country is not presented by its parents at one of our public schools, the parents are required to present some good and valid excuse for its non-appearance; social reasons are not accepted.

Little heed nowadays, I am sorry to say, is paid to any of the chronic ailments of children, which militate, and certainly prevent the school child of to-day from receiving proper instruction. In this connection, I wish to exclude the child afflicted with serious congenital defects, such as heart and speech. There are minor defects, if one will but only stop for a moment and consider, affecting the great majority of our school children, that can be relieved, provided the parents are informed that such defects exist. Squint, nearsightedness, adenoids, enlarged tonsils, bad teeth, nervous troubles, and so on, are not discovered by the parent, nor is the seriousness of such disability fully realized, until the child is under the influence of school life.

Undoubtedly, school life for the young child between the ages of six and fourteen, is growing more complex. Work is now given children far beyond their mental caliber; too much thoroughness is expected at a tender age; hence the tension on body and brain is frequently disastrous, and many times acts as a great hindrance in the proper physical development of the growing child. Multiplicity of studies for the young child, creates a superficial and oftentimes an artificial mentality. Where such a factor as this exists, so as to hinder the efforts of the child in keeping pace with its class, a tension is necessarily produced that will, sooner or later, react disastrously in the proper development of the child's body.

It is not my purpose to sit in judgment on the curriculum of the public school course of study as it is to-day; rather is it incumbent on me to call your attention to alarming increase of disabilities in the school-child. This prevalent method of cramming our school children is already having its effect on the proper development of their mental and physical organization. The seriousness of the many types of minor defects is beyond a question of doubt the dominant factor in producing dull, listless, lethargic, lazy, stupid, and backward children; and in a great many cases, the cause of a great number of the many obstinate, unmanageable, and even immoral children. If these conditions, which have existed, had been alleviated or cured, the child in all probability, would have assumed a more normal condition of physical and mental well being.

It is not the purview of this paper, to enter into any detailed argument on this subject, but rather to make a plea for the so-called "Dull and Backward

School-Child"; the child who, by reason of these minor defects, fails to keep pace with its class, and ask that you as physicians, in the relation you bear to your community, arouse a sentiment among your teachers and members of your boards of health, that will look toward the enforcement of a proper medical examination or inspection, of the children of our public schools.

In March, 1905, medical inspection in the public schools of New York City, was changed to that of medical examination. Up to January, 1907, 134,000 children had been examined. The findings showed an enormous proportion of minor defects, and also a considerable proportion of serious ones. I have not the time to enter into any extended analysis of this report, only to call your attention to a few of the more important ones. From March, 1905, to June, 1906, 97,543 children were examined. Out of this number it was found that 64,735, or about 66%, were in need of medical treatment. About 38%, (37,638) had defective vision; 30,789, about 31%, had defective hearing, and 38,991 of these children, about 40%, had bad teeth.

In a recent medical examination of the public schools at Sea Breeze, a suburb I believe of New York City, during the summer of 1906, 550 boys between the ages of five and twelve were examined for throat troubles, and of that number only 85 had no defect. Thirty-eight of 417 of these boys had normal vision, while 769 girls between the ages of five and fifteen were examined for hypertrophied tonsils, and out of this number, only 101 had normal throats. And out of 709 girls whose eyes were examined, only 80 were found to be normal.

The Department of Health of New York City recently rendered a report on seventy-seven so-called backward children, who had been under medical treatment for the relief of their respective disabilities. Their report states that "All of the seventy-seven have improved physically and have been promoted."

"All but four have done more in school in the past six months than in the previous two years."

"One child did three years' work during the past year: that is, a child of eleven, backward, was promoted rapidly and performed all the work that is expected of a child six, seven and eight years of age."

"Four of these seventy-seven children did not advance."

"It may very readily be assumed that this rapid promotion was due almost entirely to the improvement in their physical condition, which resulted from the removal of their hypertrophied tonsils and post-nasal growths, which had so seriously interfered with their breathing and consequently with their physical and mental development."

I wish particularly, to call your attention to the very recent report of Dr. Foster, late Secretary of the State Board of Health, and a member of this organization, who, as Medical Inspector of Schools for the City of Oakland, reports to the school department of that city, the result of his examination

of the children attending the public schools in that city. In his report he says that "approximately ten per cent of children in attendance at the local schools are not properly nourished, either through lack of wholesome or sufficient food, and are victims of mal-nutrition." He also states that "a large percentage of boys between ten and sixteen years of age, are afflicted with mental dullness, as well as physical debility, as the result of taking nicotine into their lungs by means of cigarettes."

Out of 359 pupils so far examined by Dr. Foster, 155 have been found to be suffering with defective vision, 90 with poor hearing, 60 from defective nasal breathing, 122 from badly decayed teeth, 2 with defective palates, 3 with nervous diseases, 111 with adenoids, 77 with diseased tonsils, 33 with enlarged glands, and 33 with mal-nutrition.

Without going further into detail, these few facts alone, I believe, are of sufficient importance to impress you with the seriousness of a large number of these defects, that only become manifest so soon as a child enters school life. Such a condition of affairs affecting the school-child of to-day, certainly ought to impress us as health officers, particularly so those of us who are entrusted with the preservation of the public health, with the fact that it is our duty to insist on those in charge of the public schools, the absolute importance and necessity of a proper medical examination of all children now attending our public schools.

A trained observer can generally select the defective children in a school after a brief period of observation. Their mental, physical and nervous inferiority is usually evident and unmistakable. They are now recognized as a type of lesser mental defect or backwardness, differing from the truly feeble-minded only in degree of defect. The mental dullness in these cases is not a sign of mere arrested development, but is caused by some abnormality or inferiority of the brain itself. I have never seen an experienced primary teacher who, in practice, was not familiar with this type of backward child. The average teacher does not fully interpret the lack of intellectual development. It is possible that she may shrink from the usual parental indignation and protest at the suggestion that the child may be defective mentally. The teacher is apt to believe that the school failure of the pupil is caused by the voluntary and willing lack of attention and effort.

From this superficial survey of the condition of the child in our public schools, we can safely conclude: That the school life of the child at the present day, is too complex and difficult. Too many subjects for study have been introduced, and too great a thoroughness required for a young mind. This has a tendency to unbalance development and create nervous irritability. Teachers in charge of large classes, oftentimes lose sight of the important element of personal equation, the brightest child receiving the greatest consideration, while the "backward" or defective child is entirely lost sight of. Teachers commit a great wrong if they fail to recognize a defective child. This is especially true of the

depraved type of children. The children in our reform schools, the great army of the police court, chronic drunkards and criminals, the tramp, vagrants, low prostitutes, are largely recruited from this class of the slightly mentally deficient who were neglected in their youth.

The physician should take a deeper interest in watching the mental defects and having children so afflicted properly classified. The physical defects, including those of the eye, ear, nose and throat, should receive more attention than is now given.

THE VALUE OF CEREBROSPINAL FLUID EXAMINATIONS IN THE DIAGNOSIS OF CHRONIC NERVOUS DISEASE.*

By H. C. MOFFITT, M. D.

The value of lumbar puncture in the diagnosis of certain acute nervous diseases, of meningitis, of ventricular or traumatic cerebral hemorrhage needs no emphasis. The work of Ravaut, Sicard, Nageotte, Widal, and more lately of Erb and Nonne has shown the importance of lymphocytosis in the spinal fluid. This pleocytosis may occur in secondary or late lues, multiple sclerosis, idiopathic epilepsy (rarely), apoplexy, or after trauma, but is marked only in tabes, general paralysis, cerebrospinal lues, tubercular meningitis, and in certain cases of hydrocephalus. As Erb writes, "Die Diagnose auf Syphilis des Zentralnervensystems durch eine ausgesprochene Lymphocytose sehr an Wahrscheinlichkeit gewinnt und nicht selten durch sie aus dem Bereich der Wahrscheinlichkeit in das der Gewissheit gehoben wird."

Normally there are only a few cells in the cerebrospinal fluid, and these are nearly all lymphocytes. Polynuclears are found only in meningitis, abscess of brain, or a few are present after the convulsive attacks of general paralysis. In lues cerebrospinalis, nearly all the cells are lymphocytes. In general paralysis or tabes there may be caudate, vacuolated or so-called Gitter cells as well as many lymphocytes. This slide from a case of cerebrospinal lues seen recently with Dr. Herbert Allen illustrates the tremendous pleocytosis that may be present.

It has been recognized of late that "increase in certain protein constituents of blood serum and cerebrospinal fluid is constant in patients with active or latent syphilis or parasyphilitic affections" (Noguchi). These proteins are particularly the globulins and euglobulins, which may be demonstrated by the Nonne and Apelt globulin test or by the Noguchi butyric reaction.

In the Nonne test a saturated solution of ammonium sulphate is added to an equal quantity of cerebrospinal fluid, which must be free from blood. A distinct cloudiness occurring within three minutes is called a positive reaction. The papers of Nonne (Deutsche Zeitschrift fuer Nervenheilkunde, Bd. 36, S. 44, Journal A. M. A., July 24, 1909, p. 289) give interesting comparisons of the value of pleocy-

* Read before the San Francisco County Medical Society, November 9th, 1909.

tosis, the Nonne test, and the Wassermann reaction in blood and cerebrospinal fluid in many cases of tabes, general paralysis, cerebrospinal syphilis, and of chronic non-syphilitic nervous diseases. In forty-seven recent cases of tabes, pleocytosis and the globulin test were positive in forty. Out of seventeen cases of general paralysis only one failed to give the reactions, and fifteen out of eighteen cases of cerebrospinal lues gave positive results.

In the *Noguchi* butyric reaction 0.5 cc. of 10% butyric acid in 0.9% salt solution is added to 0.1 cc. of spinal fluid, which must not contain blood. The mixture is boiled for a few moments, 0.1 cc. of 4% NaOH is added quickly, and the fluid again boiled for a few seconds. A granular or flocculent precipitate, which soon settles under clear supernatant fluid, is called a positive result. Opalescence or even marked cloudiness without precipitation is regarded as negative.

Noguchi has found the reaction positive in tubercular, epidemic, and influenzal meningitis, in two cases of hydrocephalus: negative in epilepsy, alcoholic psychoses, senile dementia, spastic paraplegia, typhoid, lobar pneumonia, etc. It is invariably positive in cerebrospinal lues, tabes, and general paralysis. It is often positive in congenital or secondary or tertiary syphilis, but is less marked and the characteristic granular sediment may not occur for two hours instead of in ten or fifteen minutes.

The following is a short résumé of the reactions in twenty-five cases seen recently in private or hospital practice:

1. Man of 45, chancre on finger six years ago: treated by many physicians in this country and abroad the last two years as a neurasthenic: slow speech was the only noticeable symptom, but some mental failure was later apparent. No changes in pupils or reflexes, most marked pleocytosis, Nonne and *Noguchi*. Subsequent course has confirmed the diagnosis of general paralysis.

2. A man of thirty without syphilitic history: very marked mental decay and disturbances of speech in the last two years: slow light reaction in pupils, very lively knee jerks: marked pleocytosis with positive Nonne and *Noguchi* in the spinal fluid. This patient is now confined in an asylum with general paralysis.

3. Wife of patient number one, who thinks she must be infected, and who imagines she has the same nervous symptoms as her husband. No mental or somatic signs, negative Wassermann in serum: practically no cells in spinal fluid and negative Nonne and *Noguchi*.

4. Man with history of syphilis and scars of former eruption over forehead: many neurasthenic symptoms, and a firm conviction that he has syphilis of the nervous system: lively reflexes but no signs of tabes or general paralysis: Wassermann and examination of cerebrospinal fluid negative.

5. Man with syphilitic infection fifteen years before. Peculiar nervous symptoms lately had led to diagnosis of probable general paralysis. All tests of cerebrospinal fluid negative, and patient now apparently well.

6. Typical case of general paralysis seen in hospital. Pleocytosis marked: Nonne and *Noguchi* strongly positive.

7. Young man of thirty without specific history but with very marked tremor of the tongue and

lips, characteristic speech changes, very lively reflexes, and two recent attacks of transient hemiplegia. There were very marked mental changes, no evidence of active lues, very marked Wassermann reaction in blood serum, and most marked pleocytosis, Nonne and *Noguchi*.

8. Man in hospital with cerebrospinal lues and probable tabes: pleocytosis marked, Nonne and *Noguchi* positive.

9. Man of 55 in hospital; old and recent iritis, optic atrophy, absent knee jerks, positive pleocytosis, Nonne and *Noguchi*.

10. Woman of 30 in private practice; intense hyperalgesia of trunk for six years; typical stomach crises for four years; typical lancinating pains; very marked sensory changes over trunk; positive pleocytosis, Nonne and *Noguchi*.

11. Girl of 13 with hereditary lues and gastric crises; positive pleocytosis and Nonne in cerebrospinal fluid, *Noguchi* not tested.

12. Tabes with hemiplegia (male); pleocytosis, and Nonne positive, *Noguchi* not tested.

13. Tabes (typical), (male), pleocytosis, Nonne and *Noguchi* positive.

14. Typical tabes in a man with gastric crises and a Charcot knee; pleocytosis and Nonne positive; *Noguchi* not tested.

15. Probable stationary tabes (male), indefinite pains, Argyll-Robertson pupils, optic atrophy; pleocytosis slight, no Nonne or *Noguchi*.

16. Man with cerebrospinal lues, infection twelve years ago, symptoms for some months: weakness of left leg, pains in legs; extreme pleocytosis, positive *Noguchi*, no Nonne.

17. Man in hospital with papulosquamous syphilide and subacute myelitis; positive pleocytosis and Nonne; *Noguchi* not tested.

18. Boy of 11, polyuria, polydipsia, emaciation; positive pleocytosis, Nonne and *Noguchi*: improvement under mercury and iodide.

19. Man of 30 with severe syphilitic infection ten years ago and many later lesions in mouth and nose; many nervous symptoms with headache and occasional neuralgic pains in occipital nerves; tests of spinal fluid entirely negative.

20. Young man with many vasomotor and neurasthenic symptoms; several attacks of severe pain in mid-dorsal nerves with girdle sensation; cerebrospinal fluid normal.

21. Young man with arteriosclerosis, headache and depression; cerebrospinal fluid negative.

22. Combined system disease; no luetic stigmata; Wassermann and cerebrospinal fluid tests negative.

23. Woman of 36 brought to hospital in coma with temperature of 40°; history of recent convulsions; tuberculosis of right apex, syphilitic ulcer on right shin; cerebrospinal fluid showed very few cells, a slight Nonne but no *Noguchi*; urine, specific gravity 1024 with a trace of albumin and many casts. Autopsy showed no meningitis or cerebrospinal syphilis but granular kidneys. The nervous symptoms were no doubt uremic.

24. Man of 28, epilepsy developing five years before; no history or signs of syphilis; Wassermann and cerebrospinal fluid negative.

25. Man of 29, epilepsy for five years; cerebrospinal fluid negative but a positive Wassermann in the blood serum; no history or signs of syphilis.

The tests are of most value in doubtful cases of general paralysis, tabes, or cerebrospinal lues, in which either symptoms or signs are equivocal. Or, they may help decide the importance and gravity of many functional nervous symptoms in patients with

history of lues who are suspicious of beginning tabes or general paralysis. Together with the Wassermann reaction in the blood serum and cerebrospinal fluid, they may help in determining the nature of apparent idiopathic epilepsy or in distinguishing brain tumors from syphilitic disease. They must be used, of course, only in conjunction with the general clinical picture, and their value can only be properly judged after the lapse of sufficient time to accumulate many more cases than are now on record. The recent article of *Williamson* emphasizes the necessity of caution in judging of their value.

It is unwise to practice lumbar puncture indiscriminately, as it is a procedure not without disagreeable sequelae at times, particularly in neurotic patients with unstable vasomotor systems. There may be severe headache and dizziness for some days following puncture.

CONGENITAL DISLOCATION OF THE HIP.*

By HARRY M. SHERMAN, M. D., and GEORGE J. MCCHESNEY, M. D., San Francisco.

At the meeting of this Society held in Fresno I reported the first of the cases of congenital dislocation of the hip that I had attempted to correct. The report was but a preliminary one and covered several cases in which the reduction had been accomplished through an incision with deepening of the acetabulum according to the earlier technic of Lorenz, and also a smaller number of cases in which the reduction had been attempted by the manipulative method of Lorenz, as it was then practiced.

I revert to this now, for I then promised to report the late results in these cases, and I can now only make a partial report because of the disappearance of all but a very few of these patients from my observation.

Of those reduced through an incision with deepening of the acetabulum I can report but one, for I cannot find the others. This was the second patient I had operated upon for the condition. The reduction has remained stable, but free motion has never been attained; in fact the reverse was noted, the hip has become progressively stiffer, the limb has gone into adduction and become shorter while at the same time a coxa vara has developed. To correct the coxa vara and lessen the shortening I some time ago did a subtrochanteric osteotomy and gave the limb good abduction, but again it is slowly going into adduction. In spite of these faults, the girl's walk is easy, though there is a little irregularity in the step; she does not tire readily and she is free from the classic deformity of a dislocated hip. She is, in short, much benefited but has not been accorded an ideal result.

As the chief late finding in this case I note that *the acetabulum is at a higher level than is normal*; that is, the deepening of the acetabulum, which involved epiphyseal lines, interfered certainly with the growth of the ilium and probably that of the ischium

and pubis, as we would expect it to do in any of the long bones.

To the manipulative cases that I reported in Fresno, I can easily add all I have done. There have been thirteen hips and twelve failures. The one success has been ideal and incomparable, for the child has had vertebral tuberculosis and tuberculosis of the nondislocated hip. During his convalescence from these infections he wore a large and complex apparatus to hold the spine and the hip, and did his walking on crutches and the hip which had been dislocated, and *it never failed him*. He is now again well and of his two hips the one which had been dislocated is the better, though the other, which has recovered from the tuberculosis, is a good practical hip joint.

The remote likelihood of getting a satisfactory percentage of anatomical reductions by manipulation led me, in a child in whom the apparent reduction had immediately redislocated, to make a second reduction and then, while the bone was held in place by another, I cut down upon the hip and inspected the parts. This was done on the 28th of May, 1898, and the note, made immediately after the operation, reads: "The Lorenz operation, except that the acetabula were not hollowed out. The left hip had not been definitely replaced, a fold of capsule being between the head and the acetabulum. The right hip seemed to have been properly replaced at the time of the manipulation. In each case the capsule was sutured, on the left side it being overlapped and the upper portion stitched to the anterior part of the trochanter, on the right side a fold was taken in the capsule by the sutures. Deep catgut and superficial silkworm gut sutures. Gauze drains. Double plaster of Paris spica, legs abducted about 20° each." The last note in the history, made a year later, in April, 1899, states that an anterior relaxation had occurred on each side, so that all that had been attained was a double anterior transposition.

The obstacle of the infolding capsule was not a new discovery, for others had found it before and had described it. It was due to a constriction in the capsular ligament of the hip, which was located between the acetabulum and the femoral head. Such a capsule, removed from the bony parts, would be seen to consist of two expanded parts, one to apply to the acetabular rim and the other to envelop the femoral head and attach to the base of the neck; between these two expanded parts would be a narrow part. Bradford has called the narrow part the "hymen of the acetabulum." Lorenz called the acetabular expansion the "pocket of the acetabulum," and the narrow part was naturally the opening and, of course, smaller than the pocket. This narrow part is smaller than is the femoral head. So it is impossible to make the femoral head pass through it unless one can absolutely accurately apply the femoral head to it and press hard enough and long enough to stretch it. Reasoning theoretically, one might say this could be done; but when one has had the opportunity of putting his finger into this nar-

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

row space, as I have had, and can know, as I do, how narrow it is and how firm is the capsule, which is all gathered together into a special thickness and which has been carrying the child's weight at every other step, he must be an optimist to believe that *without seeing* he can apply the bigger femoral head to smaller orifice, and then can, within any time that can be devoted to an operation, force it through. Only twice have I found the opening large enough to permit the passage of the head; in every other instance it has been too small to admit more than the tip of my finger.

The child whose hip condition after manipulative reduction had been exposed by incision was the first patient in whom I did not deepen the acetabula, and while my records show that I did deepen the socket in four other cases subsequently, the comparison of this child with the others was the basis for my finally abandoning the procedure.

When the acetabulum is deepened by cutting out the cartilage of the floor, it exposes cancellous bone as soon as the epiphyseal line has been passed. In the process of repair granulation tissue must spring from this bared bone and it enwraps the femoral head and attaches to it and so limits the range of motion. In no case where the acetabulum has been deepened has normal motion resulted and in some cases all motion has been inhibited, a practical ankylosis. Against a *manipulation* which succeeded in producing an anatomical reduction, the cartilage of the head being put in contact with the cartilage of the acetabulum and no capsule being infolded and which gave an ideal and permanent result, no argument can stand. The only objection to the manipulative method would be the presence in the statistics of a large percentage of children in whom the anatomical reduction could not be gained by any operator because of the infolding of the capsule. If an operation by *incision* could always accomplish an anatomical reduction, as just described, and the permanence and joint mobility were equal to those points in the ideal manipulative result, the operation by incision would be better than that by manipulation by just as much as 100 per cent is better than the lower percentage of the manipulative methods. On this argument I abandoned attempts at manipulative reduction, and for the reason I stated a moment ago, I abandoned deepening the acetabula.

But there was still another obstacle. I found that while these hips left me in seemingly stable reduction they came back in a few months or a year with the head again out of the acetabulum. This relaxation was always forward and the head lay under the long head of the rectus and beneath the anterior inferior iliac spine. This left the final result an anterior transposition and nothing more.

Lorenz had pointed out that in many of these cases there is a twist of the femoral shaft so that the head and neck point almost directly forwards, or at any rate much more forwards than is normal, and the trochanter looks commensurately backwards. This means that, to give the head and neck the proper direction so that they can enter the acetabulum with the proper relations to the socket, the

whole limb must be rotated inwards from 45° to 90° , or so that the toes point inwards. Now if, later, the toes are permitted to point forwards again, the head of the femur also comes forward, the back part of the neck rides on the posterior rim of the acetabulum and the head is lifted out of the socket and slips up above it and external to it, into the position of anterior transposition.

To control this I adopted the osteotomy which Lorenz had practiced and advised, a subcutaneous subtrochanteric linear osteotomy with this technic: While the foot is held rotated inward strongly a long nail is driven well into the trochanter but not through it; the osteotomy is then done just below the trochanter; now while the trochanter, neck and head are held in normal relation to the acetabulum by the nail, the projecting end of which is grasped by the fingers or a forceps, so that part of that bone cannot move, the limb below the osteotomy is rotated outwards until the toes point forwards. This gives the neck and head a practically normal relation to the shaft, and when the toes point forwards the neck and head point inwards, upwards and only a little forwards; the head enters the acetabulum with the proper relations to that socket, and there is no tendency for it to rotate forwards and leave the socket. This gave me anatomical reductions which were permanent; the joints had ample or normal ranges of motion; there was no interference with any developmental process of the bones of the pelvis or femur.

In all there have been 64 hips in 53 children under my care. Of these 42 hips in 36 children have been reduced through the incision, and of these again 14 hips in as many children have had the osteotomy done.

Of those without the osteotomy, 28 hips in 22 children. The oldest was 11 years, the youngest $1\frac{1}{2}$ years, and the average age 3 1-3 years. One hip in a girl 11 years old, relaxed and I was never permitted to attempt a second reduction; 7 hips have definitely gone into the anterior transposition; 1 hip has stable reduction, free motion, but a coxa vara has developed; 2 hips have stable reduction, partial ankylosis and coxa vara; 1 hip has stable reduction and complete ankylosis; 1 child with 1 dislocated hip died of infection of the incision; 4 children with 4 hips have not been heard from; 5 hips are satisfactory to parents and home physicians, and there are 6 hips which we have examined personally and know to be practically normal hips—that is, there is no limp even when the child is tired, all possible gaits are equally easy and the child does not fatigue readily.

The relaxations are due to our failure to appreciate earlier the importance of the forward twist of the neck and head as a relaxing cause. In the earlier days we were content to take a radiogram of the hips with the toes pointing forward and accepted the picture as a statement of the shape and size of the neck and head. Then we discovered that this was not enough and so two radiograms are always taken, one with the toes pointing forward, and this shows, if there is a twist, the head looking forward

and the neck foreshortened; the other picture is taken with the limb rotated in so that the toes point to the opposite foot, and then we get a profile of the upper end of the femur which gives an adequate idea of the length and direction of the neck and the size of the nucleus of the head.

It is to be noted that if there is but one hip dislocated the ossifying nucleus in the femoral head on the side of the dislocation is always smaller than that on the normal side. The radiograms all show, also, a deficient overhanging lip of the acetabulum, so that the resistance to the upward thrust of the head in carrying weight is less than in a normal hip.

From what has been said it is easy to see that the cases in which osteotomies have been done have been those cases that have come to us more recently, as in the last three years. There have been 14 hips in which osteotomy has been done. Of these the oldest was 5 years, the youngest was $1\frac{1}{2}$ years, and the average age was $2\frac{3}{4}$ years. Of these two are in anterior transposition due to suppurative around the nail, so that it loosened and failed to hold the trochanter rotated forward, but instead permitted it to swing back to its original relation to the shaft. These were then the same as if no osteotomy had been done. Seven hips in as many children have given perfect practical results; that is, the reduction is stable, there is free motion in ample range, there is no obvious limp even when the child is tired, and the child does not tire readily. Five hips are still under treatment, and while all are doing well, they are not sufficiently advanced to permit me to report on them in any other way.

The importance of the osteotomy in our estimation is very great and the need for it can be most accurately estimated by the radiograms of the hips in the two positions. Reduction, whether that be done by manipulation or through an incision, is, in the cases with anterior twist, most likely to be unstable and relaxation to the position of anterior transposition is common unless the osteotomy be done. With the osteotomy the proper relation of the head and neck of the femur to the rim and socket of the acetabulum can be secured and so the tendency to relaxation avoided.

With this technic of reduction through an incision, which really reduces, and osteotomy when it is necessary to fit the component parts of the joint to each other, we feel that we can give to our patients a full 100 per cent of their chances for a practical joint. We cannot recreate bony deficiencies nor perfectly fit together wholly mismatched parts, but with a practical acetabulum and a practical head and neck, we think the method should give a practically normal joint.

A joint is a mechanical contrivance and the test of its mechanic competence is its functional competence. A joint which has a functional competence equal to that of a normal joint, is itself a normal joint. In many instances the radiogram may show variations in shape, size and other details from the generally accepted form, but if the function is equal to that of a normal joint we claim that it is a normal joint.

PELLAGRA IN CALIFORNIA.*

By RUPERT BLUE, Surgeon United States Public Health and Marine-Hospital Service.

History.—Pellagra was first described by Casal of Spain in 1735. It next attracted attention in Italy in 1771, and was named pellagra (meaning rough skin) by Frapolli at that time. As early as 1810 Marzori called attention to the relation between maize eating and pellagra. The late Professor Lombroso, of Milan, probably devoted more time to the study of the etiology of the condition than any other single observer. During the course of his investigations he became convinced that the syndrome was produced by a toxin occurring in damaged corn. Tizzoni advanced the theory that the disease was of bacillary origin. This, however, has not been proven.

The prevalence of the disease in this country was not positively known till Searcy of Alabama reported the outbreak which occurred in the State Hospital for the Insane at Mt. Vernon in 1907. Since that time cases have been reported from various parts of the United States by Wood, Watson, Babcock and Lavinder. The latter in a report to the Surgeon-General estimated the number of pellagrins in the United States to be one thousand five hundred. I think this falls far short of the actual number. The chief seats of the disease are the corn-producing states or where corn is used as a staple article of diet, as in the southern states and in Indiana, Illinois and New York. I am of the opinion that pellagra can be found to-day in nearly all of the insane asylums and almshouses of this country. In fact, it may be one of the most prolific causes of insanity, invalidism and poverty.

In the United States as in Italy, the disease is confined almost wholly to the laboring classes. Wood states, however, that it affected all classes alike in the cases studied by him.

Etiology.—As with other diseases of which the cause is not definitely known, those who have studied it have arrived at widely divergent views regarding its etiology. In a general way there are two prevalent theories, the one holding that there is a definite relation between Indian corn and the disease, and the other maintaining that this view is incorrect. The maize theory of the etiology may be classed under three heads: (1) It is an intoxication; (2) it is an autointoxication; (3) it is a specific infection either by bacteria, molds or protozoa. The question of the communicability of the disease has also received considerable attention. This question may be considered as still *sub judice*, but I do not believe that the evidence thus far presented warrants us in the belief that pellagra is contagious or infectious, or in establishing quarantine against it. Thus far the only fact which seems to offer any hope is the occurrence of the disease chiefly among those subsisting on a corn diet which has undergone fermentative changes. Alcoholism, insanitary surroundings and its coincident train of diseases act as predisposing causes.

* Read before the San Francisco County Medical Society, December 14, 1909.

Pathology.—There are absolutely no characteristic changes. Cachexia, emaciation, fatty degeneration of the heart, liver, kidney and spleen, atrophy of the muscular coats of the intestine, together with hyperemia and ulceration, have been noted. The lesions in the spinal cord resemble somewhat remotely beginning tabes. Other changes noted in the nervous system are inflammatory products in the walls of the vessels of the brain and cord, degeneration in the lateral columns in the dorsal region and of the posterior columns in the cervical region. The skin presents a chronic congestion, thickening, pigmentation and atrophic changes, bringing about the roughened condition from which the disease takes its name.

Symptoms.—In general it may be said that cutaneous lesions involving the dorsal surfaces of the hands, symmetrical in position, if accompanied by stomatitis and diarrhea, warrant the diagnosis of pellagra. The case which I now present to you is in most respects fairly typical and will show better than I can describe it, the signs and symptoms of the disease.

A. R., male, white, aged 51, farm-laborer, born in the Cape Verde Islands; has lived in the United States twenty years.

History.—The patient does not know and there is no record to show when he became a public charge. He was admitted to the wards of the Alameda County Infirmary in May, 1908, on the diagnosis of melancholia. At this time he was almost completely blind.

Examination.—November 16, 1909. The patient was emaciated but not anemic. The dorsal surfaces of the hands show evidences of repeated attacks of dermatitis. A similar condition was present on both sides and back of the neck and on the ears. The skin over these areas is dark-red in color, scaly and rough. A few white striae can be seen on the darkly pigmented surface of the neck, the whole presenting a piebald appearance.

There has been a moderate stomatitis and slight pyalism, the tongue being red on tip and sides and apparently denuded of epithelium. The diarrhea is almost constant. (Patient exhibited during the examination irritability, stupidity and tremors of the head.) The knee-jerk on left side was increased; the gait was slow and uncertain. Owing to the mental dullness no personal or family history can be obtained. Inasmuch as this is the first case to be described in California, it would be interesting to know just where the disease was received.

While this is a very clear case, it should not be forgotten that the symptom-complex may vary with the seasons. Thus, if a patient be examined in the fall or winter the stomatitis or diarrhea may have abated and the clinical picture will be incomplete. In such cases the only visible lesion will be the scaly, discolored condition on the backs of the hands. In other words, all the features of the disease are not present all the time. The chronics, however, will exhibit in addition, cord symptoms and mental aberrations. When in doubt, place such cases under observation and watch for an acute exacerbation of the characteristic signs in the following autumn or spring.

According to Babcock, the Italians regard obstinate diarrhea, mental disturbances and exaggerated knee-jerks as pathognomonic of the affection. The

English depend mainly upon the gastro-intestinal, mental and cord symptoms as a positive syndrome and will diagnose a case in the absence of skin manifestations. Pellagra without cutaneous lesions has been described by several authorities. There are no ocular signs which are characteristic. In our cases the senility present and mental dullness made it impossible to say which were due to the noxious agent and which due to the old age. The case exhibited to-night has been nearly blind for many years.

Prognosis.—In America it may be said in general that the prognosis in all cases of pellagra is grave as to final and complete recovery. It may be assumed that when the patient arrives at the asylum in a state of insanity, recovery is practically unknown. Of course, the earlier the diagnosis can be made and the treatment begun the better the prognosis. The outlook for immediate death is in proportion to the severity of the symptoms. The chronic form without mental changes is perhaps the most favorable of all. Fever and extensive erythema are danger signals. The severity of the intoxication may also be judged by the degree of mental involvement. The gravity of the prognosis is increased by complications, especially with changes in the lungs or kidneys.

Prophylaxis.—It goes, of course, without saying, that all of those factors which tend to lower bodily resistance predispose to the disease, but beyond this our views regarding prophylaxis will be influenced largely by our opinion as to the etiology of the disease. On one fact, however, all seem agreed; that is, that damaged maize plays some role in the transmission of the disease. It is, of course, foolish to assume that because of this sound corn should be entirely excluded from the dietary. It would seem more sensible to instruct the farmer how to properly harvest and store corn so that the grain may have no opportunity of undergoing fermentation. In the matter of public education, the danger of eating corn products which have undergone fermentation should be very generally impressed.

Treatment.—There is no specific treatment for the disease. Arsenic has proven a valuable agent, but probably acts by simply improving the general condition. Rest and a nutritious and abundant diet are, of course, very important. Maize should, of course, be excluded from the dietary of the patient. Hydrotherapy has had a decidedly beneficial effect in some cases. The skin should be protected against the direct rays of the bright sun in order to prevent a bad erythema. The remainder of the treatment is entirely symptomatic.

COMMENTS ON TROPICAL MEDICINE.

By CREIGHTON WELLMAN, OAKLAND.

The Societies of Tropical Medicine.

The increasing interest in tropical medicine has found expression in the establishment of several societies devoted to the advancement of our knowledge of tropical disease. The Deutsches tropenmedizinisches Gesellschaft in Germany, the Société de Médecine et d'Hygiène Tropicales and the Société de la Pathologie Exotique of Paris are all

doing valuable work. For English speaking workers, membership in one of the three following active societies would be of great advantage in keeping in touch with the latest progress: The American Society of Tropical Medicine, Secretary Dr. John M. Swan, Philadelphia Polyclinic, The International Society of Tropical Medicine, Secretary Prof. G. H. F. Nuttall, University of Cambridge, England, and The Society of Tropical Medicine and Hygiene (London), of which the American Secretary is the writer of these paragraphs.

Insects and Disease.

The admission of the importance of arthropods as disseminators of disease is in a large sense the direct outgrowth of tropical medicine and bids fair to become the great question of the day in epidemiology and pathology. The transmission by these creatures of such diseases as malaria, bubonic plague, dengue, filariasis, yellow fever, typhoid, tuberculosis, relapsing fever, sleeping sickness, tropical splenomegaly, spotted fever, etc., has been worked out in such a manner as to fill the sanitarian with suspicion toward a large part of the insect world. A detailed and systematic study of many arthropods thus becomes a necessity for the student of scientific medicine. One or two institutions have established courses in medical entomology and at least a course in medical zoology, including some consideration of insects, should find a place in every medical curriculum.

A Squirrel-Free Zone Around the Bay Cities.

We learn from the Public Health and Marine Hospital Service that the finding of plague infected ground squirrels within a mile of the city of Berkeley has led to an effort, now in progress, to destroy all these rodents within a radius of two miles of the bay cities and thus to lessen the danger of the urban rat population again becoming infected.

The Malaria Situation in California.

The number of malarial infections in this State is very large. While there are many cases constantly arriving from the Orient, there are also many originating here in California. Dr. Eleanor S. Bancroft of the University of California has kindly furnished us with records of the malarial cases treated in the students' infirmary during the past 18 months, and these show that over two-thirds of all the cases originating in the State come from places on the Sacramento River or its tributaries. All the California cases we have seen personally were from the Sacramento or San Joaquin valleys. Dr. Bancroft's report shows, however, that Humboldt county in the north and Fresno county south have also furnished cases, while one case seems to have originated in Oakland and another in Berkeley. Of the strictly tropical fevers Chile, Mexico, the Philippines, Hawaii, South China and Japan have furnished the cases the writer has seen. It need hardly be said that account has been taken only of cases recognized microscopically as well as clinically to be malaria. All three species of plasmodia have been seen. Cases contracted in the Philippines seem to be chiefly benign tertian while

those from the Sacramento Valley are usually aestivo-autumnal with frequent double infections, the other parasite being benign tertian as a rule. The only anopheline mosquitoes yet collected are *Anopheles maculipennis* and *A. punctipennis*.

Endemic Hemoptosis.

The writer has examined one case of this disease in a Chinese who had been in Formosa, and had no difficulty in demonstrating the ova of the lung fluke (*Paragonimus westermanni*) in the patient's sputum. Dr. Hayward G. Thomas of Oakland has recently called our attention to what is in all probability a second case in a white man who had lived in Japan. This infection should be looked for with the expectation of finding cases of it, as it should not be uncommon among the Orientals who come to us from the endemic centers of the disease.

ALKAPTONURIA.*

By JOHN C. SPENCER, M. D., San Francisco.

My excuse for occupying your attention with the subject of alkaptonuria, is the rarity of the condition—there having been but fifty cases recorded in medical literature—and the fact that one examining urine more or less frequently may stumble across a case and be somewhat at a loss to explain the phenomena characteristic of the condition.

The most striking peculiarity connected with this condition is that the urine, which may have been passed by an individual perfectly normal in all other respects physically, will, upon standing a longer or shorter period of time—usually at least twenty-four hours—acquire a brownish smoky tinge, remaining the while perfectly clear. This discoloration is due to the presence of *homogentisic acid* in the urine.

The original investigations on this interesting topic were made in 1857 by Boedeker, his attention having been attracted to it during a series of investigations on the various substances which have the property of reducing copper in solution. Homogentisic acid has been found invariably in every case of alkaptonuria. The brown discoloration is due to the very slow absorption of oxygen from the atmosphere. If the urine containing alkapton be actively agitated over a period of time, in a test-tube, the color-reaction takes place much more rapidly. If, however, an alkali, as caustic potash, be added, the reaction will take place more rapidly than in the absence of the alkali. Unless the urine be agitated, the reaction will be comparatively slow. If on the other hand, the alkalinized urine be violently agitated, there will be a very marked color reaction, which will be blackish in the upper layer of the fluid, forming a contact ring.

Wolkow and Baumann have made very exhaustive researches upon this phenomenon, including attempts to establish its pathology, but with imperfect success. It may be mentioned in passing, that three other substances, not due to the ingestion of drugs or chemicals, possess the property of producing a brown discoloration upon standing. They are: Brenzcatechin; glycosuric acid; uroleucic acid.

* Read before California Academy of Medicine.

The substance alkapton itself is described in the "Lexicon of Medicine" and "Allied Sciences" as being amorphous and resembling grape-sugar in certain respects. It is pale-yellow and glazy, burning with a pale flame and giving off a urinous smell. Heated with calcium nitrate, it gives off ammonia. It is soluble in water and alcohol and not fermentible. It reduces copper and silver oxides in the presence of a free alkali. Careful laboratory tests show that alkaptonuric urine is capable of absorbing approximately four-fifths of its volume of oxygen, when the test is made with the addition of a small quantity of caustic potash and the mixture agitated. As to further chemical tests (and this phase of the subject has been well thrashed out, chiefly by the German chemists) I must refer you to the literature.

This will be found very completely set forth in the fifth English edition of von Jaksch's "Clinical Diagnosis." Such references as have been accessible to me in the original have been but few. Quoting from von Jaksch's work: "Homogentisic acid, which is chemically hydroquinone-acetic acid, is apparently produced from tyrosin and phenylalanin in the body, for it is shown that the quantity of this acid is markedly increased when tyrosin or phenylalanin are administered to the patient, whereas it is not excreted when tyrosin is taken by a normal individual. Proteid food also increases the output. In a very few cases alkaptonuria has apparently occurred as a temporary or intermittent phenomenon."

From the clinical side, quoting further: "In the great majority of cases it is a congenital, lifelong, harmless peculiarity, which is apt to occur in several brothers and sisters of a family. It is seldom directly transmitted from parent to child, but in a large proportion of cases the subjects of it have been the offspring of consanguineous marriages. It has been observed in infants from the earliest days of life."

The individual from whom the urine presented was derived has had no illnesses of any nature beyond a few of the ordinary diseases of childhood. He is unusually robust, and sprung from vigorous ancestry. There is no personal or family history of lues obtainable. He is a very generous feeder and consumes a moderate amount of beer daily. His color is somewhat pasty, his abdomen quite prominent. According to his own statement, he enjoys the best of health, and all of his functions are normal. In the course of a routine examination of his urine, the specific gravity being 1028, the urine was subjected to Fehling's solution for the possible presence of sugar. The immediate and heavy precipitate was most striking. A reference to the authorities evolved the explanation of the reaction.

SOCIETY REPORTS

HUMBOLDT COUNTY.

At the annual meeting of the Humboldt County Medical Society, held Jan. 27th, the following officers were elected:

President, Dr. C. W. Mills of Arcata; Vice-President, Dr. J. N. Chain of Eureka; Secretary, Dr. E. V. Falk of Eureka; Treasurer, Dr. B. M. Marshall

of Eureka; Delegates, Dr. C. C. Falk of Eureka, and Dr. Joe Menefee of Arcata; Alternates, Dr. G. N. Drysdale of Eureka and Dr. B. M. Marshall of Eureka.

E. V. FALK, Secretary.

MONTEREY COUNTY.

The annual meeting of the Monterey County Medical Society was held in Salinas December 8. Dr. T. C. Edwards, Salinas, was elected President; Dr. A. M. Ritchie, Pacific Grove, Vice-President; Dr. H. T. Crabtree, Salinas, Secretary; Dr. Jno. Parker, Salinas, Treasurer; Dr. J. E. Rankin, Gonzales, Censor; Dr. H. B. Christiansen, Delegate to State Society; Drs. T. C. Edwards and W. A. Lillie, Alternates.

New members: Dr. Wm. Himmelsfuch, Carmel-by-the-Sea; Dr. N. B. Gould, Gonzales; Dr. Garth Parker, Salinas; Dr. John Beck, Salinas.

H. T. CRABTREE, Secretary.

SAN BERNARDINO COUNTY.

At the regular meeting of the San Bernardino County Medical Society, held Tuesday, December 14, the following officers were elected for the ensuing year: President, Dr. W. P. Burke; Vice-President, Dr. Hoell Tyler; Second Vice-President, Dr. T. M. Blythe; Secretary, Dr. Gayle G. Moseley; Treasurer, Dr. W. A. Taltaval.

The society has again taken up the post-graduate course as outlined by the American Medical Journal, as this course was found eminently practical and beneficial the past year.

The County Society has arranged with the Physicians' Club for permanent quarters in which to hold its meetings. There has been formed a physicians' club, which has leased quarters in the new Masonic building, and some physicians will be eligible to membership in this club and will have the benefits of the regular meetings who would not be eligible to the County or State Society.

In these club rooms, which will be the headquarters for the County Society, there will be on file all the leading medical journals and reviews and some books of reference. It is the purpose to make this the nucleus for the formation of a library which will be increased from time to time by the voluntary contributions of its members. The securing of these club rooms has stimulated the interest in the society and we believe that we are entering upon a year of unusual activity and prosperity.

GAYLE G. MOSELEY, Secretary.

SANTA CLARA COUNTY.

The following officers were elected to serve the society for the year 1910:

President, Dr. E. R. Wagner, San Jose; First Vice-President, Dr. R. A. Whiffin, San Jose; Second Vice-President, Dr. C. G. Wilson, Palo Alto; Third Vice-President, Dr. Clara Silvia, Gilroy; Secretary, Dr. J. J. Kocher, San Jose; Treasurer, Dr. H. J. B. Wright, San Jose; Councilors—Drs. Jordan, Osborne, Simpson; Delegates 1910-11—Dr. J. L. Asay, Dr. J. J. Moyer; Alternates 1910-11—Dr. W. W. Fraser, Dr. Edward Newell.

Dr. A. C. Posey applied for transfer. Dr. Benj. Thomas resigned.

J. J. KOCHER, Secretary.

SONOMA COUNTY.

The Sonoma County Medical Society held their meeting Dec. 3, 1909, at Hotel Overton with the following attendance: Drs. W. J. Kerr, President; G. W. Mallory, Secretary; A. B. Herrick, J. H. McLeod, Jackson Temple, F. O. Pryor, E. E. Briggs,

J. W. Clark, H. J. Trachman, P. A. Meneray, R. M. Bonar, J. J. Keating, J. E. Maddux, S. Z. Peoples, W. C. Shipley, J. W. Seawell, E. J. Ruddock, F. N. Folsom, R. A. Forrest, W. J. G. Dawson; C. P. Maddux, visitor.

Dr. E. E. Briggs, formerly of Santa Cruz County Medical Society, was elected to membership in this Society. We now have fifty members. Every one of the members is "square" on the Secretary's books, and the Society has on hand cash about \$70.00.

Dr. Seawell's clinic illustrated that a tourniquet may do great harm. A young man with two companions, seventy miles from a doctor, accidentally shot a bullet through the fleshy part of outer one-third of right arm on inner surface. One companion put on a tourniquet very tight, as they thought the brachial artery was severed. The tourniquet remained in this position till they met Dr. J. Walter Seawell, a long while after accident. There is now a partial paralysis, also ankylosis of wrist and elbow joint. Dr. Dawson and Dr. J. E. Ruddock discussed paper and observations.

Dr. J. H. McLeod, late of Europe, gave a talk on sinuses and the doctor exhibited many slides, showing diseases of sinuses about nose. Dr. Shipley and Dr. Temple spoke upon the subject. The election of officers follows:

President, S. Z. Peoples; Vice-President, J. Walter Seawell; Secretary, Jackson Temple, and Treasurer, Lizzie Lain.

Dr. W. J. Kerr invited the Society to a feast of good things, hot turkey and all that goes with it. The next meeting will be held in Petaluma, Jan. 7, 1910.

G. W. MALLORY, Secretary.

BOOK REVIEWS

Operative Surgery. By Warren Stone Bickham, M. D., New York. Late Instructor in Operative Surgery at Columbia University, New York, etc. One Volume, 1204 Pages, 854 Illustrations. Third Edition. W. B. Saunders Co., Philadelphia, Penn. Credit is due the publishers for the way this book comes from the press,—the printing and arrangement of facts, together with the indexing, make it a pleasant book with which to work. The typographical and grammatical errors are as few as one sees in a publication of this character. The preface of the first edition tells briefly what the object of the book is and what ground it expects to cover. This is well written. Here the author shows his appreciation for the profession and for his co-workers. In the contents is an excellent arrangement which simplifies the task of finding subjects.

We believe that the operative part of surgery consists mainly of knowledge of anatomy, as does the author, though we do not agree with him that anatomy should be discussed in a work on surgery. The space is so limited in a one volume text that the anatomy cannot be described sufficiently to make it valuable. The surgeon should be referred to his many works on anatomy which will make the subject much more comprehensive to him. We do not approve of the teaching that "pulsation" is a good method of locating an artery, page 18. It may be a good guide but the one who depends upon it is a poor surgeon.

The utilization of one figure for illustrating several points is to be praised. For instance, the cut on page 23 shows (1) the ligature being pulled from the carrier; (2) making tension with the tips of the fingers while tying the knot rather than making tension with the thumbs as many do; (3) the surgeon's knot. This knot, however, is incorrectly tied. When two turns are used in making the first half of the knot, two turns should be used in making the second half. This makes a smooth knot that will not slip. The

continuance of the blood to flow through an artery that has been tied can scarcely be spoken of as "allowing the establishment of a small stream of blood," page 24. The illustration on page 54 shows the supra-scapular artery passing downward in front of the subclavian vein. This artery should be represented in a higher plane than that of the subclavian vein. The illustrations which represent cross sections of various parts of the body are quite valuable.

The subject of vascular surgery is very well written. We regret, however, that the author has left unmentioned the most potent factors in the suturing of arteries and veins, viz., handling them with fingers only, removing all adventitia, not permitting any to be carried into the lumen of the vessel, and keeping the vessel and suture covered with a heavy coat of vaseline. Under treatment of vascular neoplasm the author neglected to mention the use of carbonic acid snow. This is modern treatment and gives the best results.

Advising to "catch the vein with forceps" and "avoid taking the intima in the grasp of the suture," is erroneous. The "large veins" of which the author speaks are deeply situated, hence their walls are extremely thin; furthermore, intima should be brought in contact with intima by the suture passing through all the coats of the vein.

Surgery of the lymphatics is very concisely explained. We are inclined to think the article would have been more valuable had the author impressed the reader with the importance of exposing the more important structures in the neck at the beginning of the operation, thereby avoiding injury to them, and with the fact that operations begun to remove small areas of infected glands often end in long, tedious dissections.

The expression, "Outer Canthus of Eye, zygomatic arch, meatus auditorius externus, angle and horizontal ramus of lower jaw," page 181, is objectionable because two forms of nomenclature have been used, and because it is inferred that the lower jaw has a horizontal ramus. The rami of the mandible are perpendicular to the body of the bone. The descriptions of the removal of the gasserian ganglion are well written and include the most acceptable methods. The protection of the eye during and after the operation has not been brought out, however. This is of great importance, as corneal ulcers are prone to follow if the eye is neglected. It is not clear why the author repeatedly speaks of "shaving the part to be operated" and gives no other instructions in preparing the patient. It would have been well to have devoted a chapter to preparation of patient, surgeon and assistants.

The figure on page 249 is enormous in size, made at the expense of the text, and of very little value. Chapters IX, X and XI, Part 1, are treated so meagerly they might as well have been left unwritten. "Douching with hot water" does not convey much meaning to young surgeons and nurses. The temperature of the water should always be stated in a text. We do not understand why the author uses chromic catgut in suturing muscle tissue during amputations. Numerous cases of 20 to 30-day forms of chromic catgut have been recorded as being removed from sinuses months after operations. We recall two cases, one where 20-day gut was removed 125 days after operation with the knot intact; the other, where it was removed five months after being inserted.

It must be admitted that a large per cent of amputations are done in infected areas, as in railroad and factory work, and that iodized catgut sets free a certain amount of iodine which has a prohibiting power over the reproduction of bacteria near the suture; further, that the iodized gut is more surely to be absorbed near the time the surgeon intends it to be. Under "D," page 651, an erroneous way of making a lumbar puncture is shown. It requires

only one dissection of the lumbar vertebrae to convince one that the needle should be inclined inward and upward in only the slightest degree.

Had the author warned against the incision extending into the areolar tissue around the nipple, in treatment of abscess of the breast, many unsightly scars would have been prevented. Grasping the tip of the appendix with forceps, referred to on page 905, is a common and bad practice. We have seen cases where if the appendix had been grasped by forceps a clean operation would have been converted into a pus case, owing to the presence of a small abscess in the tip of the appendix. It is just as effective to grasp the meso-appendix at its free border close to the appendix.

The advice to "scour the breast and nipple" is very dangerous. There are too many young surgeons who scour the operative field. The process of scouring has caused many infections. Operative fields should be very gently cleansed, keeping in mind that harsh rubbing and stiff brushing rob the tissues of just the thing upon which we must depend, that is, their natural defense against the action of the bacteria that remain even after the best surgical cleansing. "Antimesenteric," page 910, and "undisarticulated," page 462, must be original with the author. They are very poor words. The author stated in the preface that he would give credit to those who worked out operations by mentioning their names when known. Evidently many have not come under his notice.

The many headings in such bold type may add to the value of the book, but they tend to produce a newspaper effect. The chapter on bone grafting is treated in too little detail. We should like to know how the author "sterilizes collodion." One might as appropriately speak of sterilized iodine. The surgery of the brain and that of the abdomen are very well written. These articles alone would make the book a commendable one. The composition of the book reveals much intelligent and painstaking effort. With its up-to-date effect, and concise explanation of facts, it should be in every surgical library. The work includes all surgery of the body from the eyes and ears to that of the feet. This, to be sure, makes details impossible, and causes many fields to be briefly treated, yet the author's tact has made it possible for him to express valuable ideas on all subjects.

The criticisms we have made are fewer than might be made of any volume of this kind that we have read. We think this is the best one-volume operative surgery to be obtained. H. E. C.

Facial Spasm and Tic, Diagnosis and Treatment.

Monthly Cyclopaedia, January, 1910. Tom A. Williams, M. B., C. M. (Edinr.), Washington, D. C.

This is a practical paper pointing out when surgery should and when it should not be used in "spasmodic" disorders of the face and neck. The author explains why torticollis has been the despair of the surgeon. It is because the great majority of these cases are purely psychogenetic. Cases of his own and of others are reported in illustration. The mode of genesis of the affection, the diagnostic differentia, are indicated, and finally the psychotherapeutic required is alluded to. The principal criteria are in the form of a table which follows:

Spasm—Sudden, resembling electrical stimulation. Rhythmic and synchronous, or in lightning waves of same movement. Muscles often enfeebled. Exaggeration of reflex concerned only. Distribution of peripheral nerve. Often painful, always distressing, no craving. Persists in and may interrupt sleep. Purposeless. Irreproducible voluntarily, unmodified by volition or emotion. Various etiology, but gen-

erally peripheral irritation, e. g., trigeminal neuralgia (which is not a true tic).

Tic—Brusque and brief, slower. In volleys of similar movement repeatedly. When tonic distinguished from stereotyped act by absence of catatonic aptitude. No weakness, often hypertrophy. Reflexes normal. Locality condition by an idea. Painless. Tic disappears in sleep. Pseudo-co-ordinate, intentional act. Influenced by emotion or volition, but impulsive and followed by satisfaction, always arrestible (leaving no trace) by a subterfuge, a neutralizing act inefficacious mechanically or physiologically but effective psychically; also variously by solitude, distraction, position, etc. Psychasthenic character. Similar heredity, but always first generated by a determining stimulus; it is the sequel to the unhindered repetition of a once voluntary purposive act, becoming an impulsive obsession.

Chorea—Still slower. Irregular, not synchronous. Extreme variability in movement with tendency to unilaterality. Myasthenia, hypotonia. Reflexes often modified. Laterality. Sometimes painful. Sleep interfered with. Purposeless. Incontrollable by will, aggravated by emotion. Acute rheumatic diathesis, probably bacterial. No similar heredity.

Cerebellar and rubro-spinal tremor—Not sudden, but regular and increasing by movement. Similar oscillations. Myasthenia, hypotonia, or the reverse. Reflexes increased. Laterality or not. Never painful. Disappears in sleep. Purposeless. Cease at rest. Various, neoplasm.

In conclusion, some cases of hysterical origin are cited which exemplify the need (elsewhere discussed at length by the writer) Arch. of Diagnosis, Jan., 1909 of distinguishing between that psycho-neurosis (which is only occasionally the cause of tic), and the much more frequent affection, the psychasthenia of Janet, which is by far the commonest cause of the spasmodic movements or attitudes to which the term tic should be confined. The outstanding feature of these cases is the psychological abnormalities revealed by a skillful anamnesis. These may reach the point of angoisse when determined voluntary efforts are made to suppress the tic; but as Meige has shown, skillful psycho-motor discipline can practically eventually remove even the most obstinate tics.

A Practical Treatise on Ophthalmology. By L. Webster Fox, M. D., LL. D. Professor of Ophthalmology in the Medico-Chirurgical College; Ophthalmic Surgeon in the Medico-Chirurgical Hospital, Philadelphia, Pa., Member of the Army Reserve Medical Corps, etc. With Six Colored Plates and Three Hundred Illustrations in Text. Publisher, D. Appleton & Co., New York and London; 1910.

Beginning with a short but comprehensive chapter on the development of the eye, the author reviews the anatomy and external examination in a clear and lucid manner.

The diseases of the eyelids occupy fifty pages odd and practically every interesting condition is illustrated by an original drawing of one of the author's own cases. It is interesting and refreshing to have a text-book which is really personal and human, an individual's experience and recommendations, not a rehash of former methods. The operations are described following each condition, which imparts to the work an added value from a coherent standpoint.

The extirpation of the lachrymal sac is thoroughly described and well illustrated. Fuch's method is recommended, and in that I heartily concur. While an assistant at Professor Fuch's clinic in Vienna the extirpation of the lachrymal sac was practiced extensively, as the material was far too great to admit

of long continued probing. The operation is a most delicate one, but when the sac is really extirpated and not curetted the result is usually gratifying. Professor Silex of Berlin watched a number of such operations done by us and a few weeks later when I visited him at his clinic in Berlin I noticed that he was forced to curette instead of extirpating, showing how difficult this operation is and how carefully one should follow the directions.

The diseases of the conjunctiva are prefaced with a few paragraphs on the bacteriology, a most welcome innovation in our late text-books on ophthalmology.

Here, also, the operations follow and particularly is the pterygium procedure well shown and described. To digress I may say that the successful removal of pterygia taxes an ocular surgeon's skill, and it is here that the young practitioner is judged and not by the cataract extractions, which are few and very far between.

The Major Smith operation for cataract receives ample space, as do the most important procedures on the globe.

Refraction, the major part of the ophthalmologist's work, is well undertaken and sufficiently recent as to contain an illustration and explanation of the Sutcliffe Keratometer.

Fox devotes a chapter to the "Ocular Manifestations of General Diseases," and one to "The Pupil in Health and Disease—the Ocular Manifestations of Nervous Diseases." These are by no means exhaustive but the work is not a handbook, but a practical guide, as its name implies, for students and practitioners.

Of especial interest to me is the chapter on "Laboratory Technic," and I am familiar with no other book of like size containing same.

In resumé I wish to congratulate Fox on an addition to our books on Ophthalmology and D. Appleton & Company on their courage in publishing a work entailing the tremendous number of original illustrations.

I take pleasure in recommending this treatise to the profession and to my students at the University of California.

W. S. F.

Physical Diagnosis. By John C. Da Costa, Jr., M. D. Publishers, W. B. Saunders Co., Philadelphia.

The preface sets forth the book's purpose, which is borne out by a review of the text. The author in this text meets the needs of junior students relative to "clinical anatomy and to the origin, mechanism and meaning of normal physical signs." The observer is encouraged to follow the research method in the study of thoracic and abdominal conditions. All available data is to be gathered both by direct examination and recognized instruments, together with laboratory methods, and conclusions arrived at by comparison and correlation of all data.

The text does not attempt to detail laboratory or X-ray technic, but states when such procedures are indicated.

The cuts, 212 in number, are simple and convey directly what it is intended to teach. A number of photographs from life are introduced. The sphygmomanometer and sphygmograph are illustrated in their use.

A pleasing historical review of auscultation and the stethoscope is introduced.

The description of each disease is prefaced by the clinical pathology which makes clear the reasons for the various physical diagnostic signs. The cuts illustrating the gross pathology are in black and white.

The section upon broncho-pulmonary disease is illustrated by a number of radiographs which are very clear.

Physical diagnosis of the cardio-vascular system is illustrated by a comparison of many pulse tracings

and many diagrammatic representations of the heart sounds.

In fact, the book is sufficiently elementary to meet the needs of junior students and to refresh the practitioner, and yet comprehensive enough to supplement texts upon medical and surgical diagnosis.

Francis Williams, M. D.

A Sidelight on the Syphilitic Actiology of Tabes.

Trans. Am. Med. Assn., 1909. By J. J. Putnam, Boston. (Abstract by Dr. T. A. Williams, Washington, D. C.)

The writer has never seen a case where syphilitic infection, or at least illicit sexual intercourse, could be ruled out, nor a tabetic woman in whom the absence could be proved. Not only is fatigue, as invoked by Edinger, ineffacious, but it does not even determine the localization of the tabetic process; or a general fatigue, unattended by any obvious strain, even psychogenic in kind, may light up tabes of the lumbar roots; and there is no evidence to show that superior tabes is characteristic of the brain worker, or optic atrophy of those using their eyes excessively. He compares the cord degenerations with those in pernicious anemia, as in both the sensory system is most affected, and both begin with parasthetic symptoms. In a hundred cases of this kind he has not seen a single established syphilitic. The lesions of this disease are truly due to physiological disorder of the nervous elements by failure of nutrition. The morphological contrast is equally striking; for in tabes the changes are confined to the neural elements. They are secondary degenerations, whereas the cord in pernicious anemia presents masses of changed tissue related arterially, and not neuronically or functionally, and spreading laterally, not systematically. Indeed, actual cavities may occur in the disease when the process is rapid. Thus, as fatigue may be considered as playing a clear part in pernicious anemia, and the lesions of that and of tabes should resemble one another were the latter contributed to by fatigue. Hence we can conclude that there is an essential difference in the pathogeny of the two disorders.

PHYSICIANS' AID.

To the Secretary of each State and County Medical Society and Other Interested Members:

At the last meeting of the American Medical Association at Atlantic City the following report of Committee on Miscellaneous Business was adopted: "The Committee recommends that the President of this Association appoint a committee of five members to inquire into the desirability and practicability of the establishing under the auspices of the American Medical Association of a fund for the assistance of physicians disabled by sickness, and for a sanatorium for the treatment of such members of the Association as may be afflicted with tuberculosis or similar diseases; such committee to report to the House of Delegates at the next annual meeting of the Association."

As a basis for wise action the Committee urges that the officers of State and County Medical Societies, and others interested in the subject, should at the earliest possible date forward to the Secretary of the Committee, Dr. A. C. Magruder, Colorado Springs, Colorado, answers to the following queries, with some account of any special cases that seem to illustrate the need for provision for disabled members of our profession.

1. Is there any provision by your State Medical

Society, or local society for the care of destitute and disabled physicians and those dependent upon them? If so, how is such care provided?

2. What number of instances of special need for such assistance (or sanatorium treatment) have arisen in your locality within the last five years and what number of your members need such assistance now?

3. About how many members of your County Medical Society are at present afflicted with tuberculosis or similar diseases, or have within the last five years died or withdrawn from professional work on account of such disease?

It is earnestly requested that this matter be brought before each County and State Society at its next regular meeting, and that the desired information be furnished our Committee at the earliest possible date.

Faternally yours,

EDWARD JACKSON, Denver, Colorado.
JEFFERSON R. KEAN, Washington, D. C.
A. T. BRISTOW, Brooklyn, N. Y.
H. B. ELLIS, Los Angeles, California.
A. C. MAGRUDER, Secretary, 305 N. Tejon St., Colorado Springs, Colorado.

W. B. SAUNDERS COMPANY, AND NOT APPLETON.

In the February issue was a review of Kerley's Treatment of Diseases of Children, which, unfortunately, was credited to Appleton & Co., as publishers. This is an error; the book was published by W. B. Saunders Company, Philadelphia.

DR. McCLEAVE'S PAPER; A CURIOUS MISTAKE.

To the Editor California State Journal:—I note with surprise the publication in the February number of a paper of mine on "The Present Status of the Osmic Acid Treatment of Neuralgia." This paper was written for the meeting of the State Society in April, 1906, and its publication four years later, especially in view of its title, can hardly be of any value, and as it is unaccompanied by any qualifying date, it is surely misleading. The statistics of the surgeons quoted would doubtless require considerable amplification, and for myself, I should desire to very materially alter the paper before submitting it to your readers to-day.

Indeed, I suspect the appearance of the paper at this time is due to some inadvertence, and as I am unwilling that so old a writing of mine should be promulgated as of recent date, I will appreciate it if you will, in your next issue, in whatever way seems best to you, indicate to the Society the real status of the paper.

Thanking you, I am

Very sincerely yours,

T. C. McCLEAVE.

(Note.—The above mentioned paper was received, together with a number of others, at the Journal office a few months ago. Where it has been since April, 1906, we do not know; how, why or by whom it was sent to the office, we do not know. There was nothing to indicate that it had not been recently written. This seems to be one of those curious instances of inexplicable things that "just happen."
—Ed.)

NEW AND NON-OFFICIAL REMEDIES.

Since advising you November 1, the Council has acted on the following products:

Articles accepted for N. N. R.:

Orphol (Schering & Glatz).
Orphol Tablets (Schering & Glatz).
Arsen-Triferrin (Knoll & Co.).
Arsen-Triferrin Tablets (Knoll & Co.).
Arsen-Triferrol (Knoll & Co.).
Lactophenin (Merck & Co.).
And a large number of serums and vaccines.

NEW MEMBERS.

Mills, Jno. M., Arcata.
Van Patten, P. S., Nordhoff.
Himmelsbach, Wm., Carmel-by-the-Sea, Cal.
Gould, N. B., Gonzales.
Parker, Garth, Salinas.
Beck, G. A., Salinas.
Sawyer, H. C., San Francisco.
Duncan, F. T., Oakland.
Tisdale, C. L., Alameda.
Gleason, Chas. D., San Francisco.
Philbrook, E. B., Santa Cruz.
Chapline, Frank L., Orange, Cal.
Davis, Wm. S., Fullerton, Cal.
Hasson, D. W., Buena Park, Cal.
Wickett, H. W., Anaheim.
Lockwood, M. M., Colusa, Cal.
Smith, D. R., Belmont, Cal.
Davis, Chas. A., Bakersfield, Cal.
Brooks, Ezra, Holtville, Cal.
Richter, H. C., Calexico, Cal.
Pettersson, F. W., El Centro, Cal.
McComb, V. J., El Centro.
Patten, E. E., Imperial.
Bumgarner, Geo. M., Imperial.
Miller, Jos. A., Brawley.
Standlee, C. E., Brawley.
Cooke, J. L., Brawley.
McCracken, C. L., Redwood City.
Smith, F. H., San Bruno, Cal.
Warren, H. C., San Mateo.
Garvey, Walter, Kennett, Cal.
Newman, W. H., Long Beach, Cal.
Hill, W. B., Long Beach, Cal.
Duncan, Rex, Los Angeles.
Stinchfield, H. C., Los Angeles.
Hastings, S. W., Los Angeles.
Simonds, Paul C., Los Angeles.
McCoy, Geo. W., Los Angeles.
Fletcher, Mary D., Oakland.
Mackay, Emma S., Berkeley.
Archibald, R. A., Oakland.
Bixby, W. E., Cowell, Cal.
Stone, E. A., Oakland, Cal.
Piper, H. E., Livermore, Cal.
Jackson, W. J., Oakland.

Resigned.

Van Slyck, David B., Pasadena, Cal.
Osler, Chas., Tuolumne.
Deering, W. E., Hollywood, Cal.
Thomas, Benj., San Jose, Cal.

Deaths.

Carson, J. L., Bakersfield, Cal.
Balch, Edw. T., Santa Barbara.
Gleason, Flora, Corona, Cal.
Holden, Jos. M., Long Beach, Cal.
Noble, Edward, Berkeley, Cal.